elaborated for the purpose, but at the present time this organism yields easily to a specialized technique; and so it may be with certain other pathogens.

For a good many years now active studies have been steadily proceeding, which first raised the question of an "ultramicroscopic" type of organism minute enough to pass through the pores of a porcelain filter, and therefore designated "filtrable virus." Proof that these viruses represent living organisms was established by experiment, and many prevalent human and animal diseases were shown to be due to such agents—for example, rabies, epidemic poliomyelitis, rinderpest, etc. More recently, attempts to cultivate them artificially have in certain instances proved successful, with the result that some information is now directly obtainable regarding their biology. It seems unlikely, however, that all the viruses of this nature represent a homogeneous biological class.

It is interesting to recall how, a number of years ago, the virus of yellow fever present in the blood of infected persons was found to be filtrable and it was classified as ultramicroscopic. In 1919, however, Noguchi described as the causal organism of the same disease a leptospira whose etiological relationship to yellow fever is now generally accepted. The filterability of the virus was also confirmed by Noguchi, and the possibility of a granular phase of the leptospira such as that described in the case of other spironemata was suggested. All these facts are of the greatest significance in relation to the whole question of the biology of the filtrable viruses, but hasty generalizations and speculations are to be avoided.

The influenza problem also exemplifies the intricate difficulty of determining the exact causal agent of an obvious infective disease. Since the pandemic of 1918 bacteriologists have been divided in opinion as to whether the classical *B. influenzae* of Pfeiffer or a filter-passing virus is the primary causal agent in the disease. Without treading already well worn ground in this controversy, attention may be drawn to the successful isolation of an exceedingly minute bacilloid filter-passing organism from this disease by independent workers in different countries—the *Bacterium pneumosintes* of Olitsky and Gates. Having had the opportunity of studying the biological characters of this organism (isolated by Sir Spencer Lister), I have little doubt of its close relation to the true bacteria; its size is not constant and in a certain environment it may attain the dimensions of one of the recognized bacteria. These facts are also highly significant in any biological speculations regarding the filter-passing organisms. The "Rickettsia bodies" of typhus fever and the "globoid bodies" of epidemic poliomyelitis provide further examples of exceedingly minute structures of doubtful biological nature that have to be reckoned with in the new bacteriology.

The whole subject of the filtrable viruses is a field of study in which a vast amount of careful investigation is required and it holds many pitfalls for the unwary observer; but here we must look for some of the conquests of the future.

The present position, then, in the etiology of infective disease is that a large number of infections are due to, as it were, tangible micro-organisms, but in a considerable proportion of prevalent diseases admittedly infective, the causal microbe is either quite unknown, or doubtful, or still undefined in the biological sense. I need only quote, to exemplify this, such human diseases as small-pox, measles, scarlet fever, and rheumatic fever, though we have a large volume of highly suggestive observations bearing on their causation.

While in medical bacteriology a single specific organism is the usual objective, we cannot disregard the fact that the sum-total result in an infective disease is not always the product of one parasitic species; micro-organisms may and do attack the tissues in team fashion. In certain of those processes due to saprophytic bacteria that go on in nature, it is generally agreed that the changes cannot be interpreted as a function of one species acting alone but of two or more flourishing together in symbiosis. This must not be overlooked when investigating the causation of microbic disease. Studies of dysentery have shown that a specific dysentery bacillus may only be the starter of the process and that special concomitant bacteria may aid and abet the other (Mackie). The same is true for other conditions. An interesting example of a concomitant organism is seen in actinomycosis, long recognized as due to one of the higher bacteria, the actinomyces; in most of the cases that have been fully investigated the actinomyces is found to be associated with another organism of apparently different order which can be grown quite independently (*B. actinomycetum comitans*). The full significance of such concomitant infections is somewhat obscure and requires further elucidation.

The selective affinity that different bacteria possess for particular animal tissues is also an important etiological factor, and it has been shown that within the same species there may be separate types differing in their tissue selections. This is of the greatest significance in the pathology of certain infections: for example, dermotrope and neurotrope types respectively of the syphilis virus have been recognized, the latter being the responsible agent in syphilitic disease of the central nervous system. On the other hand, as shown by animal experiment, the virus of herpes may also produce encephalitis—thus two diverse types of lesions in different tissues may be due to the same agent (Levaditi, Kling).

Apart from exogenous infection due to micro-organisms that have usually no place in the body of the healthy animal, those commensal microbes which normally inhabit the surface of the body and certain body cavities represent a constant menace to the tissues. Exogenous pathogens, however, may gain access to the body and for a time assume a commensal rôle without tissue invasion and pathological effects.

These facts all indicate the extreme complexity of the etiological problem.

IMMUNOLOGICAL CONSIDERATIONS.

The study of immunity (immunology) is inseparably bound up with bacteriology and pathology, though at the present time it has practically attained the position of an independent science. Well defined principles have been established which have stood us in good stead from the practical standpoint, but the general tendency of recent research has been to demonstrate the complexity of the underlying biological processes, and now we are being confronted with new principles and new theories often subversive of the older ideas. The original work on immunity, however, elicited facts and phenomena which are still incontrovertible, and the artificial production of immunity for prophylaxis and treatment will ever be one of the greatest achievements in the history of medicine. The early scientific work on artificial immunity almost seemed to herald a glorious future in which infective disease could be easily overcome; the antitoxin treatment of diphtheria revolutionized the therapeutics of this disease; Pasteur's hydrophobia vaccine minimized the terrors of rabid dog bites; typhoid vaccination has reduced the great prevalence of typhoid among armies in the field; tetanus antitoxin used as a prophylactic has obviated many a death from this fatal disease; small-pox vaccination has contributed to the removal of that epidemic scourge of past times, and it is to be hoped that the lessons of the past will not yet be entirely forgotten. But many natural obstacles have barred the universal application of this means of prophylaxis and treatment. Unfortunately immunological therapy has not always been employed in a rational or scientific manner, and certain measures of this type, not fully justified by the general value of the results obtained, have been exploited to such an extent that the whole system has often been in danger of discredit.

Attention has been drawn quite recently to a possible obstacle in artificial immunization against certain types of bacteria—for example, the tubercle bacillus: that these organisms possess fatty envelopes which prevent their proteins from coming into contact with the tissue cells and so stimulating an immunity response when injected in vaccine form (Dreyer). If the removal of this obstacle is ultimately proved beyond doubt to allow of effective immunization against such bacteria, medicine will owe a great debt to this immunological achievement.

One of the great principles of antibacterial immunity has

been that the immune state is due to specific serum antibodies which have an adverse influence on the particular organism or neutralize its toxin, and passive immunization by the injection of the serum of an immune animal, which has undoubtedly proved of the greatest value in certain conditions, is based on this. The study of these antibodies is one of the most fascinating in the whole field of scientific medicine and its range now extends far beyond strictly bacteriological limits. In short, antibody development constitutes an important demonstrable reaction of the tissues to the introduction of any alien protein, and the specificity of antibodies for the particular type of alien substance (antigen) is one of the most remarkable of biological phenomena. It is more than doubtful, however, if these reactions constitute the complete immunity mechanism of the body. The tendency may have been to attribute immunity to phenomena observable by known laboratory methods, but present knowledge is now revealing the existence of still unknown factors. Immunity may exist in the absence of "immunity reactions," and it is open to question whether certain antibody effects signify an immune state. It has been shown that particular tissues may be locally immunized to certain bacteria without any general reaction (Besredka). Moreover, we now know that the resistance of the tissues may be influenced in a non-specific fashion by the parenteral injection of alien protein, and it is difficult sometimes to disentangle in our interpretation of results the specific from the non-specific effects when an alien protein substance is injected into the body for immunization purposes—for example, an immune serum or a vaccine consisting of killed bacteria. The possibility that one infection may influence the resistance of the tissues to another is already supported by experimental and clinical experience. We find also that an endocrine secretion, adrenaline, may play a part in the immunity mechanism and render innocuous certain bacterial toxins—for example, that of the diphtheria bacillus (Marie). Finally, it must be borne in mind that while the interaction of antigen and antibody may under one set of conditions lead to immunity, under another set the very opposite effect — anaphylaxis, or hypersensitiveness — is produced.

Thus the scope of immunology has been gradually widening, and the solution of many of our problems must ultimately depend to a large extent on a fuller knowledge of the underlying chemical changes in the tissues on which immunity depends and of the chemistry of the reacting elements and the chemical and physical nature of the reactions. In laboratory immunological work we observe and utilize reactions in which we still know comparatively little about the fundamental chemical and physical phenomena. The reacting substances are apparently colloids—the "dynamical state of matter" (Graham)—and the reactions may only be elucidated by further reference to colloid chemistry.

I have referred to the high degree of specificity of serum antibodies; in virtue of this certain antibody reactions play an important part in the diagnosis of infections. The classical example is the Widal reaction, which depends on the *in vitro* clumping or agglutination of the typhoid bacillus by certain antibodies (agglutinins) in the serum of an infected person. Similar tests have been employed in other bacterial infections, but at the present time their limitations must be emphasized as well as their value. Antibody development in infection is inconstant both in degree and time, and such variations must be reckoned with in this method of clinical diagnosis. Moreover, the serum of a normal person is not always without agglutinating properties, especially for certain bacteria, and the quantitative limits of normal effects will determine what is a significant diagnostic result. This has been particularly true in the serum diagnosis of Malta fever.

One of the most unexpected developments of recent years in this field is the so-called Weil-Felix reaction, which depends on the agglutination of a certain type of *B. proteus* by the serum in typhus fever. In this disease antibodies are developed that are specific for an antigen which, as far as we know, has no etiological relationship to the particular disease. These so-called "heterogenetic" antibodies present further interesting complexities to the student of immunity. The Wassermann serum reaction, which was discovered in almost a fortuitous manner, is probably to be regarded also among these obscure heterogenetic phenomena. Even the apparent anomalies in immunity have, therefore, rendered service in practical medicine.

Antibodies are specific for the biological species, and antibody reactions have therefore become criteria of species; but this specificity may be more restricted and has often revealed profound differences in the immunological characters of different strains of the same species. This knowledge has had an important bearing on artificial immunization. Among the pneumococci, for example, a number of different immunological types can be recognized. Immunization against one would not confer immunity to another, and for prophylactic vaccination against epidemic pneumonia all types must be represented in the vaccine used. This system has yielded most valuable results in combating pneumonia among the native labourers in the gold mines of South Africa (Lister); at one time this epidemic disease seriously threatened the gold mining industry in that country.

The recognition of different immunological types among certain pathogenic bacteria has influenced immunological measures both for prophylaxis and treatment and has overcome to some extent one of the obstacles in the way of applied immunity.

The Mechanism of Microbic Attack on the Tissues.

For many years we have spoken of bacterial toxins, we have prepared toxic substances artificially from bacteria, we have utilized them for immunization, studied their experimental effects, classified them and so on, but this work has generally aimed at demonstrating some specific poison in artificial culture of bacteria. In some cases it has been apparently successful and substances have appeared in culture which, apart from the bacteria themselves, can reproduce the particular disease in animals. In other cases no specific poison can be prepared. These so-called toxins, however, have never been isolated as pure substances. By reference to the biochemistry of the saprophytic bacteria the most elaborate chemical changes produced by these organisms in nature are interpreted in terms of enzyme action. In explaining the mechanism of disease production by microparasites, according to Pasteur's original conception, the ultimate interpretation of the tissue changes, which are fundamentally chemical, must be on similar lines; but in addition to the microbic ferments acting on the tissues, there is the reciprocal effect of the tissue enzymes to be reckoned with. Even the specific toxins show a close though not exact analogy with the ferments.

In this study new lines of thought and experiment have been indicated by Vaughan, who conceives the whole chemistry of infective disease in terms of protein decomposition by ferment action and the liberation of a protein poison or poisonous atom group of the protein molecule which is active in virtue of its intense chemism. The toxic principles in infective disease are not necessarily direct products of the parasite in the same way as poisonous chemicals are directly elaborated by plants.

New ideas regarding the mechanism of infection must be reflected in our conceptions of immunity, and at the present time there is the most urgent need for marshalling all the valid data with a view to their co-ordination. Otherwise our knowledge is in danger of becoming simply a chaos.

Regarding Chemical and Physical Influences on Micro-organisms.

The adverse chemical and physical influences that can be artificially brought to bear on micro-organisms have proved an attractive study, and the results have provided important practical applications not only in general disinfection but also in the therapeutic elimination of organisms from the tissues. Certain therapeutic substances of the present day are the direct product of this study (salvarsan in the treatment of syphilis) and there is great scope for chemotherapeutic investigation. The primary aim in this work is to identify chemical compounds with the maximum germicidal power for particular micro-organisms and the minimum toxicity for the tissues—a combination not easy of fulfilment.

The bactericidal action of light is one of the most remarkable of natural phenomena. It has been generally agreed that it is due to the ultra-violet region of the spectrum, but recent investigations have shown that certain parts of the visible spectrum, particularly the red region, are powerfully inhibitory and even lethal to various bacteria (Van der Lingen and Mackie; unpublished observations).

The Influence of the War on Bacteriological Science.

The war both emphasized problems and necessitated their expeditious solution. War conditions also, with the inevitable prevalence of infection among armies in the field, provided large collected masses of material for the study of individual diseases. The concentration of troops in various tropical and subtropical parts of the world with the occurrence of infective diseases characteristic of these regions greatly widened the range of study, and British bacteriologists were enabled to investigate etiological, diagnostic, and immunological subjects that normal conditions in Great Britain would never have provided. The result has been a significant gain to pathology and bacteriology, and out of the welter of war has come a further justification of scientific medicine.

The value of antityphoid vaccination was one of the earliest results to be noted, though in the Near Eastern campaign a by no means negligible loss was due to the initial overlooking of paratyphoid fever as a prevalent infection in the East. This omission was rectified by the use of the combined typhoid-paratyphoid vaccine, and after 1916 the incidence of the enteric fevers became practically minimal.

The great war also proved beyond doubt the prophylactic value of tetanus antitoxin, and this immunological application alone contributed something to alleviating the horrors of war.

Dysentery, both amoebic and bacillary, was studied in a truly exhaustive fashion; in fact few individual infective diseases have ever been so extensively investigated. New types of causal organisms were observed, methods of laboratory diagnosis were perfected, and certain systems of treatment were carefully evaluated. On a smaller scale choleraic disease attracted a certain amount of attention among army bacteriologists in the East, and the occurrence of paracholera was established—that is, choleraic illnesses due to vibrios specifically different from the classical cholera organism and of different epidemiological significance (Mackie).

The war also brought to light a previously unknown disease, designated by the historic and significant name of "trench fever." The infective nature of this condition was clearly proved, and later work which showed it to be louse-borne indicated means of prevention. The question of the microbic agent, however, provides a further instance of the difficulty of demonstrating and defining the infecting organism in certain diseases. The presence of the organism in the blood was proved indirectly by experiment, but it cannot be said that microscopic examination ever clearly revealed a definite parasite, and the virus was not of the filtrable type. It was shown that the excreta of lice which had fed on the blood of persons suffering from the disease were infective and contained certain minute bodies with recognizable characters but smaller than the ordinary bacteria—the so-called "Rickettsia bodies"—and though there is strong evidence that these represent the causative microbe, the final proof is still awanting and their biological nature remains uncertain.

Many other important data of outstanding practical importance were obtained during the war period. These have contributed much to our present knowledge of bacteriology and are now reflected in laboratory and clinical methods. They are well exemplified by the work done on epidemic cerebro-spinal meningitis, infectious jaundice, malaria, the venereal diseases, gas gangrene, etc. The period of the great war will always be a memorable one in the history of medicine, and bacteriology may justifiably claim a signal share in the medical and surgical triumphs of that epoch.

The Study of Bacteriology in the Universities and Medical Schools.

The observations I have made, scanty though they be, all go to show the need for a continued and even more vigorous attack on disease by microbiological methods. In equipping the necessary personnel for this offensive and in the ordinary medical training, the question of bacteriological teaching in the medical schools merits some consideration.

During these times of reconstruction most careful attention has been given to the subject of medical education, and existing systems have been revised in the greatest detail. The trend of development in medicine towards scientific application demands that the student should obtain as complete a scientific education as possible; but the possible scope of science teaching in medicine is an exceedingly wide subject, and in any case it is obvious that no undergraduate education could compass a full training in all the medical sciences. Whatever education the undergraduate receives can only be an introduction to a wider experience and a fuller knowledge.

Among the medical sciences bacteriology offers an attractive and educative field of study as a biological and applied science, though it is only one branch among many of medical training and research. In the past the training in this subject given to the undergraduate in this country has been for the most part a product of pathological teaching, and at the present time the correlation of pathology and bacteriology in the curriculum is still ideal and essential in the interests of both subjects; but bacteriology now provides so many methods of direct application in clinical diagnosis and treatment and in preventive medicine that an adequate though elementary course must now hold an essential place in any curriculum. The Education Committee of the General Medical Council in a recent attempt to systematize medical teaching recognized this, and in its draft curriculum placed this course as a preliminary to the regular clinical training of the student as a clinical clerk and surgical dresser. In short, some fundamental knowledge of microbiology is an absolute essential now to the practitioner of medicine, for he is constantly called on to approach the bacteriological problem in the causation, diagnosis, and treatment of disease. He need not carry out the investigation to a conclusion—that will usually be delegated to laboratory specialists—but on the practitioner will always fall the responsibility for initiating these procedures, and he must be in a position to appreciate the significance of results reported to him. The undergraduate course, therefore, may not convey any elaborate training, but it must impart a sound knowledge of fundamental facts and principles and a reasonable understanding of methods and procedures, with, in addition, a practical knowledge of those methods which are within the scope of the general medical worker. With only a microscope and a few simple implements and materials a vast amount of valuable diagnostic work can be done, and this is particularly true for certain parts of the world—and I can speak from personal observation—where various microbic diseases are very prevalent and where the practitioner is thrown back on his own resources without the immediate aid of laboratories.

Our aim, therefore, in bacteriological teaching, as far as the undergraduate is concerned, is to convey the theoretical and practical knowledge that will assist him to a better understanding of disease and may be necessary for the purposes of ordinary medical practice. Special or advanced knowledge of the subject and its technique can only be acquired by more intensive practical courses such as those prescribed for certain post-graduate qualifications in public health, tropical medicine, psychiatry, and for the training of special workers in this branch of experimental medicine.

Apart from human and veterinary medicine and agriculture, little provision has hitherto been made in the universities for a training in bacteriology as a purely biological science. Its increased importance at the present time makes its inclusion among the various subjects for a science degree eminently desirable, and it is gratifying to find that this has already been recognized in our University. The recent institution in an English university of a post-graduate course and diploma in bacteriology marks a further development in bacteriological teaching, and the course of training prescribed aims at providing a thorough general knowledge of the subject and also a special acquaintance with certain of its practical applications.

CONCLUSION: A PLEA FOR BACTERIOLOGICAL STUDY AND RESEARCH.

In putting before you certain aspects of the present position of this branch of science, my aim has been to indicate that bacteriological knowledge, though already advanced to a prominent place in the forefront of human progress, still presents so many crucial problems that its further advancement must be continuously maintained. Effective teaching is vital to the progress of a science, and the student must be taught in the research atmosphere if he is to gain any real inspiration from his studies. In these respects the universities, as apart from the purely research institutes, present the ideal conditions for the advancement of science, and therefore, in inaugurating my work in this historic seat of learning which has contributed an important share to the world's stock of knowledge, I would venture to make an earnest plea for the fullest possible encouragement of bacteriological teaching and research, both in the immediate interests of medicine and in the greater and wider interests of human welfare.

SANITARY ADVANTAGES OF SOCIAL AMENITIES.

AN ADDRESS DELIVERED BEFORE THE METROPOLITAN COUNTIES BRANCH,

BY

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THE County Borough of West Ham, which I have the honour to serve, is situate on the River Thames, but I doubt whether most of the members of the Branch, if given a drawing of its sinuous curves between Richmond Lock and Tilbury Fort, could place the borough in its correct position on the river bank, or could accurately describe its chief characteristics. Unkind folk have alleged that West Ham is readily recognized—witness the patronizer of the Belle steamers, plying in the summer between Fresh Wharf and Margate, who said he knew when he passed Silvertown by the row of chimneys belching forth black smoke; and there is a fairly authentic legend of an elegant young lady who, when the train came to a standstill in a thick fog and her mother said, "I wonder where we are," replied, "Oh, we are at Stratford; I can smell Pa's factory."

It will be my endeavour to enlist interest in the past history of the district—which, thanks to the patient labours of Katherine Fry, who with her eminent sister Elizabeth Fry lived there for many years, has been studied and placed on record—and to consider what bearing, if any, the changes that have occurred may or may not have had on the present-day problems of the inhabitants.

The River Lea, which separates the counties of Herts and Middlesex from Essex, and the River Roding some four and a half miles to the east, which enters the Thames near the ancient town of Barking, enclose, with the River Thames and the southern border of Epping Forest land, a quadrilateral area now occupied by the county boroughs of West Ham and East Ham, but formerly covered by the great Essex forest with some arable pasture and extensive marshes bordering the royal river. It is not surprising that Roman remains have been discovered, as the vicinal way passed through or a little to the north of the area, and Boadicea, Queen of the Iceni, who laid London in ashes A.D. 61, probably brought her forces through the same route.

One of the earliest references to the district occurs in connexion with the burial of St. Erkenwald, Bishop of London, who died at Barking Abbey in 685 while on a visit to his sister St. Ethelburga, the first Abbess. Visitors to Epping Forest even now in the height of summer can occasionally find themselves in a morass unexpectedly, and extensive floods from the swollen rivers before mentioned are still a burden to the district, and it would appear that an exceptional storm interrupted the passage of the Bishop's corpse on its journey from Barking to St. Paul's. A later writer, gifted with greater love of the miraculous than of scientific investigation, records how

"All the people kneeled down and prayed devoutly and as they were in prayer they sawe the water divided lyke as it did to Moyses in the Red Sea and to the children of Israel goynge through into the deserte. In lyke wyse God gave a drye path to the people of London for to convey this holy body through the water to the Cytee and anon they took up the body with great honour and reverence and by one assent they huried through the path, the water standyng up on every syde and so they came to Stratforde and set down the bere in a fair mede full of floures."

Every schoolboy knows how King Alfred in 895 stranded the ships of the Danes at Ware by cutting channels so as to divert the course of the River Lea, but few who cross them know that there are four streams passing through Stratford from a bend in the Lea which are traditionally the enlargement of Alfred's original undertaking. On this point it would be waste of time to argue with a Stratford man.

By the Domesday Book we learn that the quadrilateral area mentioned was labelled Hamme, and was, prior to 1066, in the ownership of two Saxon freemen, Alesxan and Leured, but soon after that fated year passed into the possession of two Norman Barons, Ralph Peverell and Robert Gernon. Little is known of the after-history of these worthies, but during the next two centuries the chief family connected with the district was that of Montfichet, which possessed extensive lands in Essex, including several manors in Hamme. Originally from the neighbourhood of Cerisy in Normandy, a Sire de Montfichet accompanied and aided William the Conqueror at the battle of Hastings. According to Stow he appears to have built "Montifiquet's Castle" a little to the west of Baynard's castle at Blackfriars, and to have been among the hunters in the New Forest when William Rufus was shot. Either he or his son came into possession by marriage, for in 1134 William de Montfichet II was a capital lord of Hamme, where he established the Abbey of Stratford Langthorne, endowing it with his demesne and two mills near Stratford Causeway. The most redoubtable member of this family was the last of his line, Richard de Montfichet II, who was a minor when his father died in 1202, but is named by Stow along with Robert Fitzwalter and Robert FitzRoger as "three most forcible and valiable Knights of England." He was one of the twenty-five Barons chosen to enforce the observance by King John of Magna Charta, was Sheriff and Forester of Essex, Governor of Hertford Castle, and assisted Henry III against Louis VII of France, and on more than one occasion against the turbulent Welsh. He died childless in 1267 and was buried in St. Paul's Cathedral, his extensive possessions ultimately being divided among the descendants of his three sisters, and what remained was subsequently acquired by smaller landowners, because by this time the greater part of West Ham had become the property of the monks of the Abbey of Stratford Langthorne.

In the meantime Queen Maude, wife of Henry I and daughter of Malcolm Canmore, King of Scotland (an additional title inserted for the benefit of Scottish members of the Branch), had suffered while crossing the Lea at Old Ford a similar disaster to that which befell the cortège of St. Erkenwald, and to avoid a repetition she constructed what is reputed to be the first bridge built with a stone arch in England at Bow, a second bridge over the Channelsea stream, and a causeway between the two. These bridges and causeway not only proved a great benefit to Hamme but also to London, which derived much of its food supplies, garden produce, potatoes, and especially flour from the several mills at Stratford, but they became a source of much contention and litigation from the time of Henry II to Queen Victoria. Queen Maude placed the maintenance and repair of the bridges and causeway in the hands of the Abbess of Barking, endowing them with certain lands and a mill. The Abbess transferred her trust, at his request, to the Abbot of Stratford Abbey on its foundation. Subsequent Abbots constantly neglected their responsibilities until forced by the courts to comply, and after the dissolution of the Abbey on March 18th, 1538, subsequent owners of what had been Abbey lands endeavoured to avoid their liability for the necessary repairs or for paying the Abbey land rate. The upkeep was finally taken over by the local board in 1876 (for a consideration), so that visitors who now motor to

Brentwood or Southend need not concern themselves with doubts as to the substantial character of the causeway between the Lea and the Channelsea, but they might profitably remember the virtues of good Queen Maude.

In Queen Elizabeth's reign our population grouped itself into three villages—a central one between the parish church and the site of the Abbey, a straggling hamlet round Stratford Green in the main Essex road, and a pleasant pastoral colony named Plaistow near the southern marshlands. The monks during their four hundred years' residence had established a trade with Italy in wool, while Stratford from its favourable situation and the numerous mills on the watercourses had long been famous for its bread-making, a trade largely carried on by the fair sex, for we read, I regret to say, of many bakeresses being fined for giving short weight, while, according to Stow, John of Stratforde in the fourth year of Edward II, for making bread less than the assize, was with a fool's hood on his head and loaves of bread about his neck drawn on a hurdle through the streets of the city. The Earl of Leicester fixed upon Stratford as a suitable lodging for the Virgin Queen at the time of the Armada, but Her Majesty preferred to visit her troops at Tilbury by river trip. She possibly remembered a previous visit to the district when, as Miss Strickland tells us, in the youthful charms of her twentieth year she accompanied her stepsister, who was nearly double her age, from Wanstead to London on the occasion of Queen Mary's accession—a prelude soon to be followed by Elizabeth's incarceration in the Tower.

Under the Stuarts and the Hanoverians the district was largely devoted to sheep-farming and market gardening, being specially noted for its potato crops; while at the same time it grew in favour with the wealthy citizens of the metropolis as fashion prescribed a country residence, so that many handsome mansions, surrounded by gardens and coverts, were dotted throughout its area. Unfortunately the proximity of the Forest offered exceptional opportunities for highway robbery, and West Ham afforded domicile during some period of their depredations both to Henry Cook, who doubled the characters of highwayman and shoemaker at Stratford and was hanged in 1741, and to the more famous Dick Turpin, who was apprenticed to a butcher in Plaistow, was hunted from his fastness in Epping Forest, and ended his career on the gallows at York in 1739. Possibly both these evil-doers on occasion consulted Dr. Samuel Jebb of Stratford, the father of Sir Richard Jebb, Physician in Ordinary to George III. Opinions will differ as to whether it is a mere coincidence or a natural consequence that the locality which once harboured Dick Turpin now contains many firm believers in the Capital Levy. As a set-off we lay claim to distinguished past residents in the persons of the Duke of Somerset, Protector during the minority of Edward VI; of Edmund Burke, who lived some time in Balaam Street, Plaistow; and we are still the proud possessors of Upton House, in which Lord Lister was born (1827).

When Queen Victoria came to the throne the population had not reached 12,000, but in 1847 the Eastern Counties Railway established their works in the northern part at Stratford, and in 1866 the Victoria Dock was constructed in the south; there followed rapid increase in factory building, congeries of streets and swarms of people, changing in fifty years a rural arcady into a busy manufacturing town, the growing areas extending from north and south as from two epiphyses, to join with what was originally the main central village.

It would be interesting to know the sanitary conditions affecting the population during the various phases of the past, but the indications afforded by the scanty records that remain lead one to conclude that, despite its reputation for sylvan amenities, the district did not escape epidemic disease. During the great plague West Ham, like other country districts, was considered a haven of refuge, and the City Fathers had their exchange at a local hostelry called the Spotted Dog, still flourishing, especially on football afternoons; probably the building was chosen because many merchants resided in the vicinity. The entries of burials in the parish registers show a fair proportion of deaths from plague. Small-pox, too, is no respecter of localities or of unvaccinated persons, and in our parish church is a fine monument recording the deaths in 1709 of Amherst Buckeridge, aged 28, and of his sister Eleonore. The inscription states:

> "Amherst and Eleonore lived to be remarkable for their great dutifulness to their parents, for their most affectionate kindness for one another, and for their being inoffensive and obliging to everybody. These both died of Small-pox in 15 days' time, one after the other, and whether the grief of Eleonore for the loss of her brother or the small-pox contributed most to her death is uncertain."

Sir Thomas Browne informs us that "some think there were few consumptives in the old world when men lived much upon milk and that the ancient inhabitants of this island were less troubled with coughs when they went naked and slept in caves and woods than men now in chambers and feather beds." Perhaps that is why Richard Mead, two centuries ago, adopted the open-air treatment by sending his consumptive patients to live on Plaistow marshes. At present we send our consumptives to live somewhere else, not because the marshes were unsuitable, but owing to their disappearance, for our present temporary sanatorium is erected in a district of a similar character.

Civilization and communal comfort have advanced apace since Edwin Chadwick, Southwood Smith, John Simon, and their associates forced on public attention the dangers arising from the grosser examples of insanitation, accompanied by annual death rates of 30 or more per 1,000 of the population in urban areas—impure water, decaying hovels, foul streets, want of sewage disposal—all of which reduced to a common denominator meant filth, and we are enjoying the benefit of the fulfilment of their prophetic vision.

Each succeeding age rests upon the shoulders of its predecessor, and we are able to recognize a series of sanitary strata in the life of the nation, as the archaeologists point to layers of towns on the site of Troy—periods of time remarkable for various developments in the direction of public health amenity. Individual sanitarians, specializing on one or more factors of a harmful character, have so focused the interest of their fellows upon their own pet hobby as to secure legislation affecting groups of diseases or classes of the community, with the result that one period stands out as an apostolic age firm in the faith of vaccination against small-pox, another period as pioneer in the isolation of infectious diseases, a third fascinated by the need for factory legislation, and a fourth devoted to the eradication of tuberculosis. The fact that earlier prophecies with regard to the disappearance of tuberculosis still await fulfilment—owing, partly to the war and partly to exuberant optimism—need not damp our ardour, especially since Professor Dreyer's research into defatted antigens; nor need we cease our duty to secure proselytes because a later generation has lost some of its faith in vaccination. Rather let us rejoice that, acting on the advice of Shakespeare, "Wise men ne'er sit and wail their woes, but presently prevent the ways of wail," the pamphlet on *Small-pox and Vaccination* issued by the British Medical Association is evidence that we intend to keep the flag flying.

The increasing knowledge of the causes of disease, the extension of bacteriological investigation, and the romance attending the part played by insects in the conveyance of maladies in tropical and temperate climes, have led the present generation one stage higher by the recognition that all medicine is ultimately preventive and that the claim of the community to protection from sickness overrides the claim of the individual to personal liberty, with the necessary corollary that mass sanitation and group hygiene must be supplemented by organized inspection and treatment of their several units—a policy finding a partial practical consummation in the joint action of central and local authorities in connexion with tuberculosis, venereal diseases, and schemes for maternity and child welfare, and the medical treatment of school children.

Sir George Newman has championed the modern policy with no uncertain voice in his public statements, and with forceful language in his illuminating reports, and few will cavil at his recent insistence upon the essential need for levelling up the individual medical practitioner, and, I humbly admit, especially some individual medical officers

of health, in order to ensure the healthiest life for each individual man and woman; and even for each foetus to be given an equality of opportunity—so far as that is possible.

So far I have dealt with general principles, but what are the particular amenities of my own district? Like the generality of mundane conditions they are a mixture of good and bad, sunshine and shadow, homely joys, and destiny obscure. Our comparative youth gives us freedom to some extent from some of the worst evils of slumdom; but our rapid growth during the early building boom, when many houses may be said to have been stuck in the mud, has accentuated the universal difficulties of dealing with the present housing problem. The limitation of most of our dwellings to two stories affords the lion's share of sunlight, but this advantage is discounted by the incense which we and our neighbours offer up to the heavens in the form of black smoke; as the greater part of the area is below Trinity high-water mark it may well be supposed that our respiratory functions are subjected to and affected by a denser atmosphere than pertains in more elevated districts, though doubtless rigid research would be required to demonstrate deleterious effects.

Our chief characteristic, however, remains that we are one of the largest and possibly poorest of industrial towns which, taken as a group, compare very unfavourably in respect of their mortality with the country as a whole or with other groups of towns, and *prima facie* West Ham should exhibit an exceptionally heavy death rate. But such is not the case. I will not weary you with statistics—they are recorded by the Registrar-General—but merely make the assertion. The administrative county of London, our immediate neighbour and rich relation, is acknowledged to be one of the healthiest cities in the world, and was rightly claimed by my predecessor to be the triumph of medicine; but while allowing London to be *facile princeps* I claim that West Ham is *proxime accessit*. For a long series of years the annual death rate of the borough has compared not unfavourably with that of the administrative county; the few exceptions have been not more than one or two units per 1,000 of the population, and in some instances merely a decimal point higher. Incidentally you may be assured that the attention of the borough council has been directed to those rare occasions when the death rate was below that of Brighton. Similarly with regard to the deaths among infants, in respect of which a heavy death roll is generally exacted from industrial towns, the decline in infant mortality which has been a distinguishing feature throughout the country during recent years has been equally marked in West Ham, where it has sunk to a figure which at the beginning of the century would have been considered phenomenal.

Without doubt the practical application of the increasing knowledge supplied by scientific workers towards combating all forms of sickness, and especially what Osler called the four killing diseases, has operated as one factor in reducing the death rate by the postponement of death; but just as the four elements—earth, air, fire (in the form of sunshine), and water—are still as potent factors in the economy of Nature as in the days of Hippocrates, so are there still several widely diffused deleterious influences which tend to communal shipwreck and to which it has been my object to direct your attention, as they are not only germane to my subject but appear to offer some answer to my proposition.

Since I prepared these notes Sir Arthur Newsholme, in an address on things that matter in public health, has insisted again upon the direful effects of these influences, and urged that to reach the goal of civic salvation we must sweep away the obstructions of poverty, intemperance, ignorance, and vice. In a few words let me try to show that the various authorities in West Ham are and have been working on these lines according to their ability.

With regard to vice in general, while willing to admit that we are no better than we ought to be in Stratford, we boldly maintain that we are not so bad as some of our neighbours. As for the specific vice of venereal disease we have not only organized, in association with the National Council for Combating Venereal Diseases, special propaganda campaigns, but before the appointment of Lord Trevethin's committee the county borough council passed a resolution in favour of allowing pharmaceutical chemists to sell drugs for self-disinfection. That a legal decision prevented the chemists from adopting the decision does not detract from the good intention of the council, which, judging from the said committee's report, was merely a little premature.

Ignorance implies want of either general or special education, both of which are only of social value if they beneficially influence conduct. West Ham has to educate not only the children of its own workers, but also those of many of the workers in London, and is notoriously one of the most necessitous areas in the matter of levying an education rate. During the year 1920-21, while the cost per child for elementary education in 82 county boroughs averaged £213, the cost per child in West Ham amounted to £282, which amount was only exceeded by Bradford and Halifax. I am not aware that any complaint has been lodged that we are extravagant, and may therefore place my town among the wranglers in any list of education authorities claiming to be stalwart fighters of ignorance. The introduction of hygiene into the syllabus of the schools has greatly increased the power of the teachers to aid social amelioration, while with regard to conduct one must not forget the devoted bodies of religious and social workers, the value of whose services resemble the silent forces of Nature—frequently unobserved but none the less incalculable.

There is no need in an assembly such as this to stress the evils of intemperance, nor do I wish to discuss the question of total abstinence. Suffice it to say that while some of us may not be prepared to accompany our abstaining colleagues all the way into the arid confines of prohibition, we may all agree that if the means to do ill deeds make ill deeds done the reasonable reduction of facilities for alcoholic abuse will diminish its evil effects, and in this respect our industrial town is somewhat exceptional. In 1887, when the administration of the licensing laws was transferred to the justices, the population was 186,000; in 1922 it was 300,905. In 1887 the number of licences was 366, in 1922 it was 295; so that while the population increased by 114,905 the licences decreased by 71. Again, last year (1922), in the fifteen largest county boroughs in England the average population to each on-licence was 604; in West Ham the average population was 1,583, or two and a half times as great. The convictions for drunk and disorderly conduct sank from 2,261 in 1911 to 602 in 1921, and he would be a particularly uninformed or prejudiced medical practitioner who would deny even without examining the returns that during the same period the Pale horse of the Apocalypse met a diminishing number of sufferers from alcoholic diseases to pass behind him to Hades.

The poor we have always with us, and in a factory and dock district even in flourishing times casual labour and poverty go hand in hand. Boswell records a dictum of Dr. Johnson thus:

> "A decent provision for the poor is the true test of civilization. Gentlemen of education were pretty much the same in all countries; the condition of the lower orders, the poor especially, was the true mark of national discrimination."

Now to test the discrimination of our local board of guardians in respect of outdoor (that is, domiciliary) relief it may be proper to deal with a normal period rather than with a time of exceptional distress, as exists at present from super-unemployment, in which an average weekly cheque of £6,000 for relief has on occasion risen to £22,000. Taking, therefore, the last normal year—that ending March 31st, 1920—the average weekly cost of domiciliary relief per person in receipt of relief was nearly 5s. 7d. for England and Wales, as compared with 6s. 2d. in West Ham. Sixpence a week may appear a trivial sum, but to a widow with three or four dependent children the 2s. or 2s. 6d. weekly it means to her represents an appreciable amount of her total income available for the sustenance of her self and family. To-day in such a case the scale of relief has risen to 5s. weekly for each child and 10s. or 15s. for the mother, with a rent allowance according to circumstances. This may

appear to err on the liberal side, but the guardians, rightly or wrongly, hold the view that relief should be adequate to the needs of the applicant, and particularly in the case of children, who, well fed rather than half-starved, are much less likely later on to fall victims to sickness and be thrown again on local rates. This surely is an enlightened policy which is followed by the borough council in supplying dried milk free under a liberal wage scale to nursing mothers and young children, as well as by generous provision of convalescent treatment for ailing youth. Carping critics allege that relief schemes foster indifference and mendicancy. It may be so in isolated cases, and occasionally one meets with what at first sight appears to justify the criticism. For instance, my chief clerk, crossing the hall corridor, met a little vulgar boy. "Well, my little man, what do you want?" said he. "Please, sir, mother says will you put on a piece of paper what's given away?" His mother's request was not granted, but I fancy assistance followed investigation, and those who practically deal with relief know that the black sheep in every flock are few.

The Autocrat of the Breakfast Table said that no fresh truth ever got into a book, and I have merely been telling you what you know. With much you must agree; from some you may differ—a happy result if it lead to a stimulating discussion, for the man who proudly boasted that he had not had a disagreement with his wife for twenty-five years was promptly told by a sensible woman present that he had led a milk and water existence. In any case, whether I be charged with endeavouring to kill the slain or with setting up West Ham in rivalry with Epidauros and Cos, I care not; my good intention (not a paving stone, I trust, in this case) has been, in legal phraseology, to obtain a writ certiorari that while it is given to the few to achieve greatness and associate their names with some definite hygienic advance, each one of us, whether medical or lay, official, burgess, or representative (if we only have power to live up to our ideal), by lending our aid to wisely directed efforts to eradicate the social evils I have referred to, can definitely improve the public health of the community among whom we dwell and help on the world in its slow but sure journey to ultimate goodness.

In the stirring language of a recent writer to the *Times*, "The ideal is the only real and lasting fact of life, and a man's worth is conditioned by the effort he makes to attain it. He who has given up belief in the certitude of our manhood's perfection must sink back to the indignities of the man with the muck-rake, with eyes bent to earth, forfeiting the true wealth of reality for the glitter of things which leave their possessors in final beggary."

THE TREATMENT OF TUBERCULOUS DISEASES:

THE EFFICACY OF SODIUM MORRHUATE INJECTIONS COMPARED WITH OTHER TREATMENTS.

BY

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Of all the treatments used for the arrest or cure of tuberculous diseases, apart from or in conjunction with sanatorium treatment, that by means of injections of tuberculins or other chemical preparations has probably been most widely and often most successfully employed. Having had a fairly large experience, extending over nearly twenty years, of these methods, and finding that as time went on I was able steadily to improve upon my procedure, is my excuse for writing this paper.

TUBERCULINS.

Many will remember the time when, in 1890, Professor Robert Koch, somewhat against his own wish and before he had completed all his investigations and experiments, was forced by the Government to publish the outline of his new treatment by injections of a "lymph" which he called tuberculin, and which is still known and used under the name of O.T. or old tuberculin.

I have before me a pamphlet, published by the late Professor Anderson Stuart of the Sydney University in 1901, entitled *A Report to the Governments of New South Wales, South Australia, and New Zealand on the Koch Method of Treating Tuberculosis.* The report is interesting but disappointing as regards some of the results. We thought that at last a remedy had been found to exterminate this dread disease. People afflicted with it flocked to Germany from all parts of the world, full of hope, a few to return with their disease arrested, many never to return at all. A treatment which with all its failures could in some cases bring about such startling recoveries was so remarkable that it would have been surprising if it had been altogether shelved. Far from it. It is the foundation stone on which the whole structure of our modern tuberculin treatments has been built.

Some of the first books published on this subject by Camac Wilkinson (1908), Bandelier and Roepke (1911), Riviere and Morland (1912), and others, were all based on Koch's original discoveries. All these authors recommended treatment by Koch's method in a more or less modified form, by subcutaneous injections of various tuberculins in gradually increasing doses at intervals regulated by the resulting reactions (see Appendix A). Of patients treated by me by this method from 1905 onwards there are still a good many alive and well. In contrast to the milder treatment recommended by Sahli I shall call this Koch's treatment.

A few histories of patients with rather advanced disease will suffice.

Case 1.—1905. Mrs. G., aged 30 years, weight 41 kg.; ill five years; pronounced tuberculous family history. Both apices affected. Right lung, first stage (Turban's); left lung, second stage; frequent haemorrhages and severe asthma. Sputum contained tubercle bacilli (Gaffky X). Disease arrested after two courses of tuberculin injections. Relapses in 1909 and 1920 easily remedied, the first by tuberculin, the last by sodium morrhuate injections. Weight 79 kg. All this time this patient lived in Sydney, which, on account of its warm and moist north-east winds in summer, is rather inimical to patients suffering from tuberculosis. Practically all the other patients whose history is given were treated under the same climatic conditions.

Case 2.—1909. Bro. J. M. Left apex, third stage. Tubercle bacilli in sputum (Gaffky X). Treatments with O.T., P.T.O., and P.T. Quite well to-day and sputum free from tubercle bacilli.

Case 3.—1909. Mr. L. L., aged 28 years. Urine contains pus and tubercle bacilli. Diagnosis: Tuberculosis of right kidney. One course of treatment with P.T.O., P.T., and T.B.E. injections. Apparently well. Urine quite clear. Relapse 1914. Treated with P.T.O. and P.T. injections. Quite well at present date. Looks picture of health.

Case 4.—Mrs. L. L., wife of last patient, was treated in 1910 for tuberculosis pulmonalis. Has had no recurrence since.

Case 5.—October, 1909. Mr. J. H., aged 36 years, weight 63.5 kg. Right apex, second stage. O.T. test positive. Ill twelve months. Diagnosis: Tuberculosis pulmonalis. Six months' treatment with T.B.E. and P.T. Well in May, 1910. Weight 73.5 kg. February, 1911, O.T. test negative. Quite well to-day.

Case 6.—February, 1912. Mrs. J. H., wife of previous patient. Aged 25 years; weight 52 kg. Right apex, second stage. O.T. test positive. Ill two months. Diagnosis: Tuberculosis pulmonalis. Eight months' treatment with T.B.E. Weight 59 kg. Well to-day.

Case 7.—February, 1912. A. H., daughter of the two previous patients, aged 10 years; weight 29 kg. Right apex, first stage. Von Pirquet test strongly positive. Ill six months. Three months' treatment with T.B.E. Well; weight 32 kg. August, 1916: O.T. test negative; weight 52.5 kg. Strong and well to-day.

Case 8.—February, 1916. Mr. J. J. S., aged 32 years, weight 57 kg. Right apex, third stage; left apex, first to second stage. Sputum contained tubercle bacilli (Gaffky X). Sent out from England as incurable. Seemed almost hopeless case. Diagnosis: Tuberculosis pulmonalis. After twelve months' treatment with P.T.O. and P.T. quite well; weight 62 kg. Has just returned from a trip to England well.

I could quote many other histories of patients treated many years ago who are still in good health. All I want to show is that by means of Koch's treatment it is possible to bring about more or less lasting arrest of advanced tuberculous disease. Still, in spite of all these successful results I was never quite satisfied, as in some cases, however small in number, Koch's treatment seemed to fail. Some patients did not improve at all, while others after an initial improvement seemed to relapse. Besides, it did not seem a suitable treatment for ambulatory cases, as patients sometimes during a severe reaction had to lay up for a day or two. On the whole patients afflicted with tuberculosis pulmonalis in all stages seemed to do better than so-called "surgical" cases—a term which I only use because up till

recent years many of these patients suffering from tuberculous gland, bone, joint, and skin (lupus) diseases had to be treated by surgical means, but most of whom, with our present knowledge, should have been cured by the physician long before surgical interference became necessary. (Cases 12, 13, 14, 15.)

When Sahli published his book on tuberculous treatment by means of very minute and slowly increasing doses of Béraneck's tuberculin without reactions, I at once made use of it as it seemed to be somewhat safer and more reliable. (I shall call this Béraneck's (T.Bk.) treatment (Appendix B).) As I anticipated, it proved to be so. Although the injections were painful for a few minutes the absence of big reactions alone made up for this slight inconvenience. In the early stages of tuberculosis of the lungs and in tuberculosis of the other organs of the body the results were far superior to Koch's treatment (Case 14). The improvement in these cases was steady and devoid of any sudden disappointments and relapses.

Case 9.—January, 1910. Mrs. G., aged 34 years, weight 45 kg. Right apex, third stage. Tubercle bacilli in sputum. Ill some time. Diagnosis: Tuberculosis pulmonalis. After six months' treatment with P.T. the disease apparently arrested. Sputum contained no tubercle bacilli. Relapse 1915. Twelve months' treatment with T.Bk. Quite well and strong to-day; weight 63.5 kg.

Case 10.—January, 1914. Mr. G. W., aged 20 years. Haematuria; urine contained pus and tubercle bacilli. Ill a few months. Diagnosis: Tuberculosis of the bladder. T.Bk. treatment. Well in 1914, when he went to the war and stayed at the front in France till the end. No relapse. Picture of health at present.

Case 11.—February, 1917. M., aged 31 years, weight 68 kg. Right apex, second stage. Larynx slightly affected. Sputum contained tubercle bacilli (Gaffky X) and streptococci. Four months' treatment with T.Bk. Apparently well; sputum free from tubercle bacilli. Went to the islands. Weight 83 kg. This patient took, apart from other meals, about two dozen raw eggs each day, which may account for big increase in weight.

Case 12.—1913. D. T., aged 15, suffering from tuberculous hygroma of right knee. Complete cure after six months' treatment with T.Bk.

Case 13.—1913. E. T., aged 19, sister of Case 12, suffering from tuberculosis of right hip-joint. Had been operated on a few months before. When first seen by me there were many suppurating sinuses and a temperature of 38.3° C. During the first two months of T.Bk. treatment the temperature rarely dropped below 37.8° C. Treatment lasted twelve months, with the result that the temperature gradually became normal, the sinuses healed up, and the patient could walk about with the aid of a walking-stick. When last heard of about twelve months ago she was employed as a domestic servant.

Case 14.—1917. Miss F., aged 16 years. A remarkable case showing the superiority of T.Bk. over Koch's treatment. Some years ago she had pleurisy and peritonitis (tuberculous). Six months ago she developed tuberculosis of the left ankle and right knee joints, for which she was being treated by a specialist with tuberculin injections with very severe reactions. Another physician, visiting another patient at the same boarding-house in which my patient was living, told her mother that in his opinion her daughter could only live another week or two. When called in I found the patient in a deplorable condition: as thin almost as a skeleton, her left ankle had a large unopened abscess, her right knee the size of a small football fixed at an angle of 90 degrees. After having the abscess opened, and without using any splints, I started at once T.Bk. treatment, with the result that in eight months' time the right knee was normal, while the left ankle was stiff but quite movable after an operation under anaesthesia for breaking down some adhesions. Six months after her return from the country she came to see me quite well.

Case 15.—One of my first cases treated with T.Bk. at the Anti-tuberculosis Dispensary is worthy of notice. I cannot get the history chart of this patient—a boy about 18 years old, who had had two amputations already, the first an amputation at the ankle-joint for tuberculosis of the bones of the foot, and the second at the junction of the lower third and upper two-thirds of the leg for tuberculous bone trouble. When seen by me he had several tuberculous sinuses, and had been advised to have the leg amputated at the knee. About twelve T.Bk. injections healed every sinus up.

Case 16.—1917. Mrs. G., aged 33 years, weight 51 kg. Ill twelve months. Sputum contained tubercle bacilli (Gaffky IV). Right apex affected to sixth rib. Diagnosis: Tuberculosis pulmonalis. Quite well after one course of T.Bk. injections with disappearance of tubercle bacilli. Two years later came to Sydney from her country residence, caught "a cold." During a severe coughing fit expectorated pieces of "marble" and a fair amount of blood. The sputum examination two days later contained many tubercle bacilli. Two months' T.Bk. treatment resulted in the disappearance of the organisms, and patient left for her home a couple of months later. Splendid health since. Weight 73 kg.

Here is a patient in the best of health suddenly having a relapse with sputum containing many tubercle bacilli, and quite well again in a few months' time. The organisms must have been encapsuled in the lung, and probably being attenuated could easily be got rid of. Hence it is always better to speak of "arrest" rather than "cure" in these cases.

Even these few histories will show how valuable a remedy Béraneck's treatment is, and I would still be using it if it had not been for the fact that the treatment presently to be described can not only bring about results equal to Koch's or T.Bk. treatment, but can succeed even where either of these treatments may have failed.

It is sometimes very difficult to convince some practitioners that there may be faults in their treatment. If anything goes wrong they are quite satisfied that it is *post hoc*, never *propter hoc*. The worst is that they are absolutely sincere in their belief. The Koch enthusiasts will never admit that if a patient does not improve it may be their own fault, and the same applies to those who use T.Bk. treatment. All the same, either method has its pitfalls. Is there any explanation?

We are under a great debt of gratitude to Sir Almroth Wright for the elucidation of many obscure points in vaccine treatment. He has demonstrated a certain definite sequence of changes in the opsonic action after the injection of vaccines. Following such an injection there is induced a phase in which the protective substances in the blood (opsonins, agglutinins, etc.) are diminished—the so-called negative phase. This is followed after a shorter or longer period of time, according to the size of the injection, by a rise in the amount of protective substances—the so-called positive phase. A dose, even if quite correct otherwise, given during the negative phase will depress the patient still more, while too large a dose given during the positive phase may sometimes undo all the good derived from the first dose. A right dose at the wrong time or a wrong dose at the right time may have equally disastrous results—with this difference as regards T.Bk. or Koch's treatment, that in the former case (the dose being so much smaller and the increases much more gradual) it may take several doses before we become aware that we are on the wrong tack; while in the latter there is seldom much doubt about it. It is merely a matter of degree. In T.Bk. treatment of tuberculous glands, for instance, the results are mostly extremely gratifying, but sometimes it may happen that instead of improving the glands may even get larger. We know then that the doses were either too large or given at the wrong time, and it may take many weeks of treatment to rectify our mistake provided it is not too late. In Koch's treatment, especially after a well marked reaction, we can usually tell if the dose was correct or not. The patient's statements, "Feel so splendid," "Never felt better in my life," tell their own tale. But after the next dose, even if chosen with scrupulous care, the patient may tell you, "Doctor, I think I have caught a slight cold." You examine him and find his lung condition worse. Has the dose had nothing to do with it? Mistakes of this kind are difficult to guard against. Only experience will enable us to avoid these blunders most of the time, but not always.

A treatment which may be harmful in even one case out of fifty is, to say the least, to be handled very carefully. I would like to say here a few words about Koch's tuberculin test. In giving it we are working absolutely in the dark. In giving these large, rapidly increasing doses of O.T. it would be surprising after what I have said if it did not do any harm occasionally; I can distinctly remember one or two patients in whom it seemed to have greatly lessened their chances of recovery. With so many other diagnostic means at our disposal it should not be necessary. After all, this test is only absolutely trustworthy if it is negative. Some years ago, whenever I intended using the O.T. test I applied a von Pirquet's test a few days before the actual O.T. test injections. By comparing the two results I can now get the same clue from a von Pirquet test as I did formerly from the O.T. test, and without any risk to the patient. The scope of this paper will not allow me to explain this further.

T.Bk. treatment has proved itself in my experience more effective in the early stages of pulmonary tuberculosis and in tuberculous diseases of other organs because, absorption of toxin often being almost absent or deficient, small doses

of tuberculin would be sufficient to set the immunization process going; on the other hand, in advanced phthisis pulmonalis, where the whole system is, so to speak, already saturated with toxin, a small dose of tuberculin would be only like a drop in the ocean. It is in these latter patients that Koch's treatment with large doses of tuberculin often gives such marvellous results, provided always the reactions following on an injection are favourable and create sufficient antibacterial substances to lessen the vitality of and finally destroy the germs.

Tuberculin treatment, especially Koch's, is a double-edged weapon which should only be handled by men with experience. Such a treatment, in which so much depends on the reactive powers of the patient, and which, if used carelessly, may sometimes have most deplorable results (Case 14), or which, even if used with the greatest care, may occasionally fail to effect improvement, or which (especially if very large doses are used) may greatly lessen the chances of recovery, is one not lightly to be undertaken.

I shall pass over treatment by tuberculin insufflation and inunction (provided the tuberculin becomes absorbed through the skin) as unscientific, because it would be impossible to regulate the doses, and the risk to the patient may be even greater still.

Sodium Morrhuate.

In the issue of the BRITISH MEDICAL JOURNAL of February 8th, 1919, Sir Leonard Rogers published a short article on the treatment of tuberculosis by subcutaneous intramuscular, or intravenous injections of the sodium salts of the unsaturated fatty acids of cod-liver oil after extraction by ether, which he called sodium morrhuate.

We all know the value of cod-liver oil by mouth in patients suffering from tuberculosis. What at once appealed to me most in connexion with this new discovery was the fact that, if successful, the effect of it would not have to depend so much on the reactive powers of a patient, but that it would act directly (as Sir Leonard Rogers suggests) by dissolving the coating of these acid-fast bacilli and thus laying them open to destruction.

Having started this new treatment from the middle of 1919, and having used it since almost exclusively, I am so much impressed with the results obtained, superior in every way to the other methods (Cases 18, 19, 27) used by me in the past, that I would not even withhold it from an almost dying patient.

Case 17.—November, 1920. Mrs. C., aged 41 years, weight 40.5 kg. Ill nine years. Almost bedridden during the last nine months, with night-sweats, temperature up to 38.3° to 38.9° C. almost every day, and frequent haemorrhages. When first seen her temperature was 38.3° C. Large amount of purulent expectoration containing tubercle bacilli (Gaffky VI). Left lung extensively affected with a cavity. Systolic blood pressure 110 (very faint). Diagnosis: Tuberculosis pulmonalis. During the first two months of sodium morrhuate treatment the temperature gradually came down, and in July, 1921, was normal. Treatment lasted about twelve months, at the end of which time cough very slight, sputum free from tubercle bacilli, and systolic pressure 140. She then left for the country. At the time I started the sodium morrhuate treatment I had several patients who, though improved under T.Bk. treatment, did not progress beyond a certain stage. With sodium morrhuate the change for the better was almost startling. Besides, in two patients, after sodium morrhuate had brought about an arrest of the disease, another very small dose of T.Bk.—about 0.001 mg. (given with the view of further immunization)—brought on an immediate relapse, which on resuming the sodium morrhuate injections was again easily arrested.

Case 18.—July, 1916. Mrs. H., aged 33 years, weight 50 kg. Ill (so she told me) twenty-two years. Had tuberculin treatment in America, with only slight improvement. Arrived in Australia in 1914 much worse. Here she had two years' tuberculin treatment at a hospital. No better. Seen first by me in 1916. Her condition looked almost hopeless. Right apex, active disease affecting the whole of the upper lobe with cavity formation. Frequent high temperatures and haemorrhages. Sputum contained tubercle bacilli (Gaffky X). Diagnosis: Tuberculosis pulmonalis. As she was so ill I did not like to use Koch's treatment; I therefore gave her T.Bk. injections, with slight improvement only until 1919, when the sputum still contained many tubercle bacilli. In July, 1919, I started combined T.Bk. and sodium morrhuate treatment by giving alternate doses of each. Still further improvement. Next course, October, 1920, sodium morrhuate. Result: Within six months disappearance of all active symptoms and absence of tubercle bacilli from sputum. I then gave a small dose of T.Bk. for the reason above stated; this was followed immediately by a relapse. After three more months of sodium morrhuate treatment the patient was discharged with the disease arrested; no sputum; weight 63.5 kg. I have seen this patient on several occasions since, the last time about a week ago, and she still seems to be in perfect health. During all this time the patient lived in Sydney doing her own housework.

Case 19.—A very similar case to the last one is that of Mrs. C., who came to me suffering from tuberculosis pulmonalis a few years ago. While T.Bk. treatment brought about only a slight improvement, treatment by sodium morrhuate was followed by a complete arrest of the disease. This patient, like the last, relapsed after receiving a small dose of T.Bk. She is quite well now. Her two boys, suffering from tuberculous adenitis, are also in good health after treatment by sodium morrhuate.

The next two histories will show how sodium morrhuate treatment can bring about an arrest of tuberculous disease even after sanatorium treatment has failed.

Case 20.—November, 1921. Mr. S. M., aged 37 years, weight 75 kg. (height 6 ft. 1 in.). Ill six months. Had three months' sanatorium treatment without any improvement. Then went to the New England district (well known for its dry and bracing climate) for some months. Slight increase in weight, but as the weakness, cough, and frequent haemorrhages did not improve, he came to Sydney for further advice. Right apex, second to third stage. Sputum contained tubercle bacilli (Gaffky V). Started sodium morrhuate treatment in May, 1922. In August, 1922, haemorrhages had practically ceased and sputum became clear of tubercle bacilli; weight 82.3 kg. I may mention that two to three weeks after commencing treatment he resumed his work as a commercial traveller, and has continued it without a break up to date. Feels and looks well.

Case 21.—April, 1921. Mr. A. C., aged 33 years, weight 63 kg. Ill twelve months. After three months' sanatorium treatment with no improvement came to me complaining of almost daily haemorrhages, cough, expectoration, weakness, etc. Right apex, third stage. Sputum contained tubercle bacilli (Gaffky X) and streptococci. Diagnosis: Tuberculosis pulmonalis. After eight months' treatment with sodium morrhuate the sputum was free from tubercle bacilli; no more haemorrhages; weight 71.5 kg. July, 1922, no cough; feels splendid. No relapse since. This patient got better under the worst possible conditions. During the treatment he lived in a very unhygienic suburb with his wife and four children in very poor circumstances.

Case 22.—May, 1920. Bro. C., aged 42 years, weight 62.6 kg. Suffered from frequent attacks of "sore throat" for the last fourteen years; much worse the last six months with absolute loss of voice. Right apex, second stage. Cavity. Larynx, both vocal cords infiltrated with tubercle formation. Both aryepiglottic folds swollen and ulcerated. Sputum swarming with tubercle bacilli (I do not remember a worse specimen). Diagnosis: Pulmonary and laryngeal tuberculosis. After two months' sodium morrhuate treatment (in Sydney) sputum free from tubercle bacilli. Two subsequent sputum examinations gave the same result. After four months' treatment weight 70.5 kg.; well; lung fibrosed and larynx healed up. As both vocal cords had been practically destroyed his voice will always be affected.

Case 23.—April, 1922. M. M., aged 11½ years, weight 34 kg.; aboriginal girl from one of the Pacific islands. Very bad family history. Ill twelve months. Right apex, third stage. Large gland (size of a large pigeon egg) in front of right sterno-mastoid. Sputum contained tubercle bacilli (Gaffky VI) and streptococci. Diagnosis: Tuberculosis pulmonalis. Sodium morrhuate treatment. To-day gland disappeared; no lung symptoms except some dullness and tubular breathing at former site of disease. As expectoration has ceased, cannot examine sputum. No cough; weight 43.5 kg. I give this history as there were two special drawbacks: (1) Coloured people if infected with the germs of tuberculosis are the worst patients for treatment; (2) it is most difficult to improve children if they once develop tuberculosis of the lungs. In spite of this, this little patient got better. If improvement will be permanent I cannot say.

Case 24.—August, 1920. R. W., aged 26 years, weight 75.5 kg. (height 6 ft. 2 in.). Good health up to three years ago, when he became incapacitated at the front in France. Right apex, second stage. Sputum contained tubercle bacilli (Gaffky II). Had two courses of sodium morrhuate treatment. To-day feels fine; weight 80 kg.

Case 25.—May, 1911. E. R., aged 25 years. O.T. test positive. Diagnosis: Tuberculosis pulmonalis. After a course of Koch's treatment, well in December, 1911. O.T. test still negative in October, 1912. Went to the war. Came to me in July, 1920, with right lung second stage. After five months' sodium morrhuate treatment, well.

Case 26.—November, 1920. Mrs. K., aged 60 years, weight 46.8 kg. Systolic blood pressure 160. Several extremely large cervical glands at the root of the neck (both sides). Ill some time. Had been told that she had cancer, and advised to have it removed by operation. Von Pirquet test strongly positive. Diagnosis: Tuberculous adenitis. Seven months' sodium morrhuate treatment brought about complete disappearance of these glands. Weight (July, 1921) 53 kg., (July, 1922) 60.7 kg. September, 1922, small gland left side. Advised further treatment.

Case 27.—July, 1922. D. D., aged 45 years. Short time before coming to me had several tuberculous glands removed from the right axilla. Large swelling of right wrist and carpal bones. After about fifteen tuberculin injections at a hospital, much worse. Diagnosis: Tuberculosis of wrist-joint and carpal bones of right hand. After three months of treatment by sodium morrhuate he was

well. Patient, who owned a small mine in which he with others had been working (pick and shovel work), went back to work. Came to see me about a month ago for another complaint (a large burn). His hand was still quite right and gave him no trouble.

I have picked out these last two histories to show the value of sodium morrhuate treatment in these (so-called) surgical cases, even after tuberculin treatment had failed (Case 28).

Case 28.—January, 1920. Sister M. G., aged 37 years, weight 56 kg. Ill eight months after pneumonic influenza. Whole lower lobe of left lung still dull; crepitations, etc. Sputum contained tubercle bacilli (Gaffky II). After eight months' treatment with sodium morrhuate all the physical signs had disappeared. Feeling well; weight 58 kg.

There were numerous patients in the earlier stages of the disease who recovered without much trouble under sodium morrhuate treatment. I have specially selected these case histories with a view of showing—

1. How valuable a remedy sodium morrhuate treatment is, even in very advanced stages of all kinds of tuberculous trouble.
2. That sodium morrhuate treatment not only gives results equal to those achieved by tuberculin treatments, but it can arrest tuberculous diseases even where previous tuberculin or sanatorium treatments have failed.
3. That given in correct doses without reactions it neither inconveniences a patient, as is often the case with Koch's treatment, nor are the injections as painful as in T.Bk. treatment. It is therefore the best method in ambulatory cases.
4. That it is the only reliable remedy in haemorrhagic or feverish patients.
5. That it is a safe remedy if used correctly, and free from those surprises sometimes following a tuberculin injection.

One strange effect as regards sodium morrhuate injections happened so frequently that I cannot consider it as a mere coincidence. We all know that tuberculin injections, given even in fairly large doses to patients either free from active tuberculosis or in the last stages of the disease, often do not cause any local reaction. (The O.T. test is based on this fact.) The same almost invariably occurs in sodium morrhuate treatment. On several occasions when patients urged me to give them a second course of sodium morrhuate treatment after an interval of about six months, when all previous clinical as well as physical symptoms had disappeared, sodium morrhuate could be given in steadily increasing doses up to 1 c.cm. or more without any local reactions. The same happened in several patients with advanced tuberculosis. By local reactions following sodium morrhuate injections I mean a local redness of the skin around the site of the injection up to the size of half a crown; different from a severe local reaction following an O.T. injection, which sometimes resembles a severe attack of erysipelas. On the other hand, even in the earliest stage of active disease, it is sometimes very difficult to work up to a 1 c.cm. injection of sodium morrhuate without reactions (thus resembling the high sensitiveness of tuberculous patients to small doses of tuberculin). Mr. M. is a case in point.

Case 29.—Mr. M., aged 37, weight 65.5 kg., came to me on account of his bad family history just after I had commenced sodium morrhuate treatment. He felt fairly strong in spite of having to do rather strenuous work. Slight cough, no physical or other clinical symptoms. *X*-ray negative. Von Pirquet test positive. Diagnosis of active tuberculosis doubtful. As he urged me to give him a course of injections as a precaution, I did so. During four months' treatment I could not give him a single injection of sodium morrhuate without a more or less severe reaction, and only succeeded in increasing the dose to 0.5 c.cm. As he felt well I discontinued the treatment; weight the same. A month ago he came back to me, looking pale, rather weak, slight cough and some catarrh. Some faint crepitations at right apex. Von Pirquet test strongly positive, making the diagnosis of pulmonary tuberculosis almost certain. I have just started sodium morrhuate treatment again and am going to work up to a bigger dose this time if possible.

This and other cases I could quote tend to show that local reactions following sodium morrhuate injections are almost specific.

After using sodium morrhuate treatment now for about four years I feel so convinced of its efficacy, of its superiority over other treatments, and of its comparative harmlessness, that should a patient (in whom the prognosis was still favourable) fail to improve or to retrogress, I would seriously doubt—

(1) If the diagnosis has been right. We all know how syphilis, for instance, can closely imitate tuberculosis of the lungs.

(2) If the patient has followed my instructions. One patient used to celebrate each injection by an extra indulgence in alcohol.

(3) If there are any complications—pneumococcal or streptococcal infections, syphilis, etc. One patient only began to improve after expelling the largest tapeworm I have ever seen.

(4) If the sodium morrhuate was up to standard.

Case 30.—Mrs. B., aged 41 years, weight 50.5 kg. Suffering from advanced pulmonary and laryngeal tuberculosis. Tubercle bacilli present (Gaffky X). Improved steadily under sodium morrhuate treatment until about six months ago, when my fresh supply of sodium morrhuate ran out. While giving slightly cloudy solutions of sodium morrhuate she went steadily back. On resuming solutions which were perfect she at once improved again, and is now on a fair road to recovery. Weight now 64 kg.

It used to puzzle me why this treatment had not been extensively used before. Apart from the slight trouble in making up the solutions and sterilizing them in an autoclave, my greatest difficulty has been that I could not procure the sodium morrhuate powder absolutely fresh for a time. Instead of a light yellow dry powder it frequently arrived slightly moist only, or as a sticky brownish mass. The powder probably deteriorated in transit. This difficulty has now been overcome. Unless the sodium morrhuate is in a good condition and the solution prepared with it perfectly clear, it should be discarded. Unless the drug is perfect the results of this treatment are negative. I feel inclined to think that this is the reason for negative results obtained by others (see Appendix C).

In conclusion I can only say that after using the various tuberculins, serum (Marmorek's), different colloidal preparations, sugar injections, etc., sodium morrhuate alone has given me the most uniformly successful results. It can be used with confidence and without fear of any unpleasant results.

I sincerely hope that this short review may induce medical practitioners to give this treatment a more extensive trial, and I feel sure that they—and what is more important, their patients—will not be disappointed. The medical profession should be grateful to Sir Leonard Rogers for placing such a valuable remedy at its disposal.

APPENDIX A.

Koch's Treatment.—Tuberculins used were T.O.A., O.T., P.T.O., P.T., T.B.E., P.B.E., and T.R. Solutions were made with sterile distilled water to which 0.5 per cent. carbolic acid had been added and prepared on a decimal system and labelled A (pure tuberculin) to E, 1 c.cm. of which contains 0.0001 gram (pure tuberculin). Smallest starting dose usually 0.00001 to 0.0001 gram, and gradually increased according to reactions to 1 c.cm. of the pure tuberculins, and to 3-4 c.cm. of the pure emulsions—the latter only in a few cases.

Increases on a logarithmic scale. For instance, start with 0.1 c.cm. of solution D, then 0.15 c.cm., 0.22 c.cm., 0.32 c.cm., 0.46 c.cm., 0.68 c.cm., 1 c.cm., followed by 0.15 c.cm. of solution C, etc.

Intervals between doses were regulated by reactions and the general condition of the patient. If there was no reaction and the patient was improving, doses were given every three to four days. If reactions, intervals were lengthened to a week, two weeks, sometimes three weeks, when the same dose or a slightly smaller one was repeated.

APPENDIX B.

Béraneck's Treatment.—At first Béraneck's tuberculin was used according to Sahli's method, by making each solution twice as strong as the preceding one. Later the decimal system of dilution was adopted.

From solution A (=pure tuberculin) to G, 1 c.cm. of which contains 0.001 mg. of pure tuberculin. Starting doses in children usually 0.1 c.cm. of G. In grown-up people usually 0.1 c.cm. of F, and slowly increased till solution E or D was employed. I do not remember ever using solutions B and C.

Increases of doses: 0.1 c.cm., 0.13 c.cm., 0.18 c.cm., 0.24 c.cm., 0.32 c.cm., 0.42 c.cm., 0.56 c.cm., 0.75 c.cm., 1 c.cm. As reactions were, if possible, avoided, injections were usually given at intervals of about three to four days.

APPENDIX C.

Sodium Morrhuate Treatment.—Three per cent. solutions, to which 0.5 per cent. carbolic acid had been added, were used after sterilization in an autoclave. Solutions, which should be clear or become clear on reheating, were made up fresh once or twice a week. In a few children doses were diluted by one-half.

Starting doses for subcutaneous or intramuscular injections were 0.1 c.cm. to 0.2 c.cm., and increased by 0.1 c.cm. (provided no reaction followed, when the dose was either repeated or lessened), to 1 c.cm. or a little more. At intervals of three to five days. The larger dose was usually repeated at intervals of six to seven days.

Intravenous injections up to 3 and 4 c.cm. in a few cases did not seem to give any better results than the repetition of 1 c.cm. doses.

NOTE ON DR. BOELKE'S METHOD OF USING SODIUM MORRHUATE IN TUBERCULOSIS.

BY

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I AM indebted to Dr. P. W. R. Boelke for kindly sending me a copy of her paper, and regard both the method of administration and the results obtained as of great importance for the following reasons. The first trials of sodium morrhuate reported by me in 1919[1] established its specific action on tuberculous disease, as shown by febrile reactions with swelling of tuberculous glands, increased discharge from tuberculous sinuses, and occasionally haemoptysis in lung cases; all effects that may be followed by improvement. Recently I discussed the probable mode of action of the drug.[2] Dr. Boelke's interesting observation of local reactions at the site of subcutaneous injections of the drug in tuberculous cases confirms its specific action on this disease. General reactions may, however, be excessive, for during the past year cases of spread of the disease in the lung, of fresh patches of tuberculous dermatitis, and in one case of apparent generalized tubercle, have followed the use of intravenous doses; so the drug, like tuberculin, is capable of doing harm, and this necessitates great caution in its use, although the very fact that it exerts such definite influence on tuberculous tissues indicates that it may have a beneficial action, if this can only be kept within safe limits.

It is precisely in this direction that promise is afforded by Dr. Boelke's plan of giving small subcutaneous doses of freshly prepared solutions—a point I believe to be of great importance—such doses as do not produce local reactions at the site of injection, which appears in her hands to have eliminated the dangerous general reactions sometimes following the larger intravenous doses formerly advised by me on the basis of their effectiveness against the much less toxic acid-fast bacillus of leprosy. The new method of administration, if confirmed by trials now being carried out by experts in this and other countries, may furnish a safe, simple, and exceedingly cheap method of treating at least a fair proportion of tuberculous cases, although prolonged observations will be necessary before the precise indications for its use can be worked out.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, 1919, i, 147; *Indian Journ. Med. Research*, 1919, p. 236. [2] BRITISH MEDICAL JOURNAL, 1923, ii, 11.

A NOTE ON THE TREATMENT OF LEPROSY.

BY

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THE treatment of leprosy by colloidal antimony has been advocated and oscol stibium (Oppenheimer) has been given a trial in the Isolation Hospital at Baghdad. Our experience may be interesting to others. The trial extended over a period of nine months, but patients were usually treated with this preparation for about three months, and the results are compared with those from the intravenous injection of a mixture of chaulmoogra oil and ether in the same patients. Fifteen cases were treated, in all of whom the diagnosis was confirmed bacteriologically. All the cases were severe and were unable to work. The types were nodular, macular, and anaesthetic, in combination in varying proportions, with tissue destruction in varying stages. In a few cases leprotic fever was present.

The treatment was by weekly intramuscular injection, starting with 1 c.cm. and increasing in the absence of severe reaction to 5 c.cm., which was the maximum dose used. The total amounts injected varied from 9 c.cm. to 146 c.cm., the average being 51 c.cm. The observations ceased on April 17th, 1923, as for economy these cases had to be discharged from hospital.

The treatment could not be persisted with in cases of leprotic fever owing to severe reaction (fever and focal inflammation). In all other cases no contraindication was found. The usual reaction was 1° or 2° of fever during the twenty-four hours following the injection and slight malaise; in some cases the reaction was more severe, and in these one or two injections were omitted and the treatment continued with lower doses. In most cases focal reaction occurred as inflammation of the nodular masses and itching of the affected skin.

In most cases following the reaction a feeling of increased well-being immediately supervened, so that the injections were popular. The general results were: distinct improvement, sensations returning to anaesthetic patches, hair returning where it had fallen out, thickening of the skin and wrinkling reduced. The nodular masses, however, did not disappear in the majority of cases, and leprosy bacilli did not usually disappear from the nasal mucus. The effect of more prolonged treatment is unknown.

After about three months the cases seemed to come to a standstill, and then treatment by chaulmoogra oil and ether was tried. The mixture used was chaulmoogra oil 75 parts, ether 24 parts, and carbolic acid 1 part. Of this weekly intravenous injections were given, starting with 5 c.cm. and increasing up to 30 c.cm. The immediate reaction is severe, particularly if the larynx is affected. A feeling of suffocation occurs, which, however, passes off quickly. This effect is caused by the ether in the injection. Similar focal reactions and beneficial effects followed this treatment to those with oscol stibium. The intramuscular injection of the latter with its delayed reaction is, however, more suited to out-patient treatment. Also the leprous infiltration of the skin makes intravenous injections difficult in some cases. The amounts of chaulmoogra mixture injected varied from 60 to 630 minims, and averaged 278 minims in 11 cases treated for an average period of two and a half months. After a period of about three months these cases also came to a standstill. Some interesting observations were made. In some cases the return of sensation by treatment was only temporary. One case while under treatment developed a fresh heavy crop of nodules on hands and arms. In another case the disease was apparently aggravated by the antimony injections as fresh eruptions and leprotic fever followed a few injections of only 1 c.cm. weekly, and the drug had to be stopped. Occasional cases, however, do very well, such as the following:

Admitted on June 9th, 1922, with granulomata on various parts of the skin of the chest and scrotum; tongue and pharynx ulcerated. Loss of hair; ulnar nerves thickened; loss of sensation complete in arms and near rash on chest. Smears from nodules and from nasal mucus showed leprosy bacilli present in large numbers. Injections of oscol stibium commenced on July 13th, 1922. On July 16th, nodules still positive to leprosy bacilli, but nose negative. No change in nodules and in hair, but sensation returning and patient feeling stronger and more cheerful. On October 4th, after 61½ c.cm. of oscol stibium, the treatment was changed to chaulmoogra oil, and from November 9th, 1922, to February 3rd, 1923, 630 minims were given. The nodules now began to disappear and hair began to return on eyebrows. From February 3rd to April 17th oscol stibium was resumed, and 85 c.cm. given. On April 17th he was discharged from the wards but engaged in the hospital as a sweeper as he was physically fit for such work. He is continuing oscol stibium treatment as an out-patient. Already the diminution of the nodosities and of the infiltration of the skin is very marked. This was our best case.

It is obvious that in advanced cases with these medicaments prolonged treatment will be necessary to effect great benefit. We have still to search for a more specific treatment. For the treatment of leprosy we must now look

forward to a defatted vaccine of *Bacillus leprae*, which procedure has been made hopeful by the recent work of Professor Dreyer.

I am indebted to Dr. Lobo, the late resident medical officer of the hospital, who carried out the treatments and recorded the notes of the cases.

THE CURATIVE DOSE OF ANTIMONY TARTRATE IN SCHISTOSOMIASIS (BILHARZIA DISEASE).

BY

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I RECEIVED recently from Africa the account of a series of 103 cases of *Schistosoma haematobium*, including one of *S. japonicum*, treated by intravenous injections of antimony tartrate. It raises questions of general interest and presents some points needing comment, therefore I venture to write a few words about the treatment.

The case of *S. japonicum* quoted was a man of 39 who had had the disease for thirteen years. He was apparently cured by a total of 20½ grains of antimony tartrate administered in thirty-one days; as it was impossible to keep him under observation, no definite conclusion regarding the permanency of the cure for *S. japonicum* could be drawn. (Two years ago the same investigator had another case of *S. japonicum* certainly cured by injections of antimony tartrate. The man was seen later in England and the cure fully investigated.)

Of the remaining 102 cases, 5 were of 10 years and under; 30 of 11 to 15 years; 27 of 16 to 20 years; 40 over 20 years. Of this total, 23 "failed to cure"—in other words, living ova were found in the urine after the injections.

In cases of "failure to cure" the question which immediately occurs to one is, How much antimony tartrate was given? None of the 23 cases of "failure" in the series had more than 13½ grains. One had only three-quarters of a grain, others had totals of 1½, 2, and 2½ grains only. Three "failures" were under 11 years of age; they had 8½, 3/4, and 2½ grains respectively. The "failures" of over 20 years—adults (four)—had a total of only 10¾, 7, 12½, and 2 grains respectively. A cure could hardly be expected in any of the 23 cases because none had a complete course.

The question thus arises, What is a full or complete course of antimony tartrate for schistosomiasis in adults? In discussing this point two things should be remembered:

1. Bilharzia is a multiple infection—as many as, or even more than, 400 worms are sometimes present in the portal veins of a patient. These worms, although they are the same age (unless reinfection has taken place), have different longevities and resistances. Some die every year; those endowed with the greatest longevity live longest. Some are killed by small doses of antimony tartrate, whilst others are more resisting and require larger doses. The "curative" dose in any case of bilharzia is therefore the amount required to kill the most resisting worm present.

2. During or shortly after a course we have no means of ascertaining whether all the worms are dead. If live ova are present in urine or faeces, at least one worm is alive. Therefore, in cases where live ova are found after treatment, the length of the interval between treatment and re-examination is immaterial, because if the worms are not killed during treatment they are unlikely to die afterwards. But when no ova, or only dead ova, are found in the case of a "cure," it is important to state after what interval re-examination is made, because the effect of the antimony is to stop the automatic movement of deposited ova, preventing live ova appearing in the urine. Ova granular or not present does not necessarily mean that the *worms* are dead—their activities may be temporarily suspended by the drug, and on recovering they will become active again, after a month, three months, nine months, etc. It is not possible to state definitely that a permanent cure has been made until a year has elapsed, but it is impossible in Africa to examine all cases after a year. A good idea may be formed after three or six months, but it is not conclusive. The complement fixation test and eosinophilia are of no practical value for diagnosis of life or death of the worms during treatment. Microscopic examination is only of precise value where live ova are found.

So we are reduced to a degree of empiricism with regard to treatment of bilharzia disease. By experience we know that some adult cases are cured permanently by a total of 20 grains given during a period of twenty-eight days; a greater proportion are cured by a total of 25 grains; and only a very few cases are not cured after a course of 30 grains. Therefore 30 grains administered over twenty-eight to thirty days remains the curative (adult) dose. I have seen one case of long standing which required a modified second course after 30 grains, but I believe such cases to be rare, especially in recently infected cases in Africa.

There was, no doubt, a good reason why the full course was not given in any of the 23 "failures" in the list. African patients frequently will not attend for treatment after they themselves think they are cured—that is, when the urine becomes clear and the pain has disappeared. Occasionally a course of treatment must be discontinued owing to "bad arm," or, less often, owing to toxic manifestations. A few patients cannot take antimony owing to idiosyncrasy;* others cannot take a full single dose (2½ grains), and some cannot take a full course of 30 grains, but these are exceptional and more commonly met with in England than among African natives. A total dose of 30 grains of antimony tartrate (adult dose) may be considered large, and a month or six weeks a long time for a cure. In time no doubt a remedy will be produced which will act by smaller dose in a shorter period; but in the meanwhile it must not be forgotten that many patients who come for treatment have had the disease for some years; without treatment it would last for five, fifteen, twenty, or more years, with the risk of serious complications always present.

Notwithstanding the exceptions mentioned, however, it does not seem fair to classify as "failure to cure" cases which have in no sense received a full course of treatment and in which live ova continue to be present. The class "failure to cure" should be reserved to failure after a complete course, and not used in cases where, for some exceptional reason, the complete course has not been given; only failure attributable to the drug itself should be classified "failure to cure."

THE SIGNIFICANCE OF THE DIFFERENTIAL COUNT.

Eosinophilia.

In tropical medicine eosinophilia is regarded as a sign of helminth infection; it must not be forgotten that it is not exclusively so. In England, where examination of faeces is not yet regarded as of so great importance as in tropical countries, eosinophilia would probably suggest asthma, a chronic skin disease such as psoriasis, or maybe spring catarrh. The difficulty in Africa, however, lies chiefly in the fact that a patient may have several different helminths, including bilharzia, each causing an eosinophilia; so until other helminth infections are excluded eosinophilia in bilharzia disease is unreliable, for they as well as bilharzia may be causing it.

The helminths do not themselves directly produce eosinophilia. When it *is* present it is a sign that the body tissues are responding (against the toxins of the helminths). Recent cases of bilharzia disease as a rule show a higher eosinophilia than cases of long standing, but heavy infections of bilharzia are not always accompanied by eosinophilia, and slight infections are sometimes accompanied by a large eosinophilia. Eosinophilia means tissue response.

Some chronic cases of bilharzia in British pensioners who had had the disease for twenty years we found had only a scanty infection and a heavy eosinophilia, while some of the heavy chronic infections had none. Some patients who had none before acquired eosinophilia during treatment, no doubt owing to the tonic effect of the antimony, the body responding to the treatment. One case, infected in 1901, had in 1921 eosinophilia 18 per cent.; during treatment with antimony tartrate 42 per cent.; after treatment eosinophila dropped down to 3 per cent.†

* Patients who cannot take antimony at all may be given emetine. Emetine is more toxic than antimony tartrate in the large doses necessary in bilharzia disease, and its after-effects are certainly more serious. Cardiac weakness and peripheral neuritis are fairly common after-effects.

† Cases infected in 1900, 1901, and 1903 gave in 1921 18 per cent., 15 per cent., 15 per cent., and 12 per cent. eosinophilia; while several war cases gave no eosinophilia when counted in 1921, although ova were present in the urine. During treatment eosinophilia appeared in some of the latter cases and increased as the course proceeded. One man infected in 1903 had no symptoms or ova in the urine in 1921, but he gave a 14 per cent. eosinophilia; he had no other helminth infection.

Similarly large mononuclear increase in malaria means tissue response to the malaria parasite. Absence of a large mononuclear increase is not a sign that malaria is not present; it is simply a sign that the patient is not reacting

Both large mononuclear increase in malaria and eosinophilia in bilharzia are indications of the response of the tissues—both are signs of good omen, but neither is a specific sign. Absence is in neither case a reliable sign that either malaria in the one case or bilharzia in the other is absent.

The Complement Fixation Test.

The complement fixation test for bilharzia is diagnostic of bilharzia disease—it is not always present. It cannot be used as a test for the presence of live bilharzia during treatment—(1) because it is difficult to obtain antigen in many places; (2) like eosinophilia the test remains positive for some time after the elimination of the worms. In short, there is no method of deciding when the worms are all dead during the treatment with antimony tartrate. The worms* probably die during all stages of treatment, a small total number of grains killing the less resisting and a larger total amount the more resisting.

The curative dose is the amount which will kill the most resisting worm (this is approximately 30 grains, given in about twenty-eight days). Adult patients should therefore be given this dose, and the few who require more than this should have another modified course later, when the remaining worms become active again, as indicated by live ova in urine or faeces. The fact that the symptoms have cleared up and no ova (or no live ova) are found in the urine is in itself no indication to suspend injections until the full dose has been given.

Antimony tartrate commences to stop the ova appearing in the urine at about 5 grains. At 10 grains some of the ova which appear in the urine are dead. The antimony tartrate acts on the ovum (the motor mechanism) first, and also affects the worm so as to suspend its egg-producing activities; but the worm is not killed till later—if too little antimony is given it recovers and recommences egg laying, and hence a relapse takes place after an apparent cure.

Cases are sometimes reported in the medical periodicals (and these are more frequent now owing to more complete examinations of patients) of vesical bilharzia where there is also rectal bilharzia with papillomata, both due to *Schistosoma haematobium*, or it may be to *S. haematobium* and *S. mansoni* in the same patient. It would be interesting for those who have the opportunity to make examinations and take specimens of the rectal papillomata at intervals to watch the local effect of the injections of antimony tartrate.

KANGRI-BURN CANCER.†

BY

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SINCE the year 1881 operations for epithelioma performed in the Kashmir Mission Hospital have numbered 2,491; of these approximately 2,000, or 84 per cent., were for kangri cancer. The kangri is an earthenware bowl five or six inches in diameter, surrounded by basket-work and surmounted by a wicker handle. It is heated by means of wood-charcoal, and is worn, by the poorer class of Kashmiris, against the skin, under a single loose garment not unlike a smock-frock. The primary factor in the causation of kangri cancer is, doubtless, heat, but it is possible that the volatile substances resulting from the combustion of the wood play a secondary part. The seats of election of the growths are the inner sides of the thighs and the anterior surface of the abdomen above or below the umbilicus. The disease is considerably commoner in men than in women, probably owing to the less continuous use of the kangri by the latter in their mostly domestic occupations. The average age for the onset of the cancer is 55; in a few cases it occurred before the age of 40, and in 7 per cent. of the cases over the age of 70. Many elderly Kashmiris show a great tendency to localized superficial overgrowth of the epithelium; small, slightly scaly, pigmented patches or papules may be found scattered over the entire surface of the body. Owing to the constant application of heat the skin of the thighs and abdomen often appears dry and horny, the course of the superficial veins is marked out by a brown discoloration, and every degree of chronic dermatitis may be met with, from a mere redness, with or without desquamation, to thickened patches, warty projections, or horny outgrowths from the surface. Scars, resulting from previous kangri burns, are frequent, and are apt to undergo a malignant change.

Kangri-burn cancer is never found on the back or on the extensor surface of the limbs. It may be single or multiple, and the skin around it usually shows scarring. In the early stages ulceration is absent, and the growth consists of a mere horny or warty thickening, beneath which an epithelial infiltration is demonstrable microscopically. The cancer is met with in three forms, the commonest of which consists of a circular or oval ulcer about an inch and a half in diameter, with deep crater-like centre and raised edges. In some cases part of the tumour is fungating and the rest deeply excavated. In a somewhat less common form the growth consists of a cauliflower excrescence, which may project one or two inches from the surface and measure three or four inches across. A less usual form, which occurs generally in the aged, consists of an excavation with very little evident sign of overgrowth. It presents small or large ulcerated areas with irregular steep edges, in places undermined, and a rugged floor rendered uneven by deep recesses.

These cancers are always very foul and the skin around is sodden with septic discharge, which dries and becomes adherent at the margin of the growth and to some extent on the surface. The glands are usually involved in cases in which the ulceration is advanced. In cancer of the thigh they are affected generally in the following order: those along the internal saphenous vein, deep in Scarpa's triangle, near the spine of the pubis, transversely below Poupart's ligament, and, in advanced cases, the deep femoral and external iliac glands. In cancer of the abdominal wall the inguinal and then the external iliac glands become involved if the growth is below the umbilicus, the anterior axillary glands if it is above that level. In more advanced cases the deep glands beside the axillary vessels may become infected. The subscapular glands are rarely involved, but occasionally small glands are found across the side of the chest from the epigastrium to the axilla. The glands frequently attain the size of a pigeon's egg and often soften early. When they break down diffuse infiltration results. The overlying skin becomes red and brawny, and finally gives way from suppuration. A secondary deposit in this condition presents an appearance similar to that of the primary growth, except that the ulcer is deeper and the subcutaneous tissues are infiltrated. There is an abundant foul discharge, and after months of suffering the patient dies of exhaustion, septic intoxication, or haemorrhage. In the case of such deposits in the groin or axilla, the femoral or axillary artery may be perforated by ulceration comparatively early in the course of the disease.

The average duration of life in kangri-burn cancer is about fifteen months; in about 10 per cent. of the cases, from one to five years; and, as an exceptional event, as long as twenty years. The malignancy varies. As a rule a small growth, if superficial, is slow to grow and still slower in infecting the glands. There are, however, striking exceptions, and at times a slowly growing tumour will suddenly show a rapid increase. More than 50 per cent. of the cases show secondary infection of the glands when first seen.

In operating on cases of kangri-burn cancer the glands should be dealt with in the first place, because the primary tumour is always septic. The glands also are likely to be septic and require careful handling during removal in order to avoid rupture. Small glands are apt to escape notice, especially the external pubic group and those in the axilla in cases of epigastric growths. In order to avoid septic contamination of the operation wound during removal of the primary tumour the surrounding skin should

* The fact that some cases of bilharzia disease are cured by quite a small dose of antimony tartrate, whilst others require a total of 20 to 30 grains, is explained by the fact that the power to resist antimony tartrate varies in different worms. This may be also the explanation of the varying opinions about the curative dose.

† In order to ensure the publication of Dr. Neve's clinical observations this paper has been curtailed by the omission of certain paragraphs discussing general questions.

be rendered aseptic and two or more volsellae applied outside the growth and clear of it, and the mass lifted as far as possible and removed with a rapid incision. Many cases occur in which, although the primary growth could be removed, the glandular infection has become extracapsular, and it is impossible to gauge the extent of the disease owing to the presence of the ill defined and more or less diffuse induration. Cases such as these, if operated upon, are mainly responsible for the mortality, due to rapid recurrence or early haemorrhage from some large vessel. Our records show sixteen deaths from operation, mostly resulting from haemorrhage; this, however, is far from representing the total mortality. Recurrence took place in probably about 20 per cent. of the operated cases.

THE TREATMENT OF GENERAL PARALYSIS OF THE INSANE BY MALARIAL INFECTION.

(Preliminary Note.)

BY

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As a result of the observation that had been made from time to time since 1816[1]—namely, that cases of dementia paralytica (degenerative encephalitis or general paralysis of the insane) frequently showed prolonged remissions and even apparent cure following a febrile illness or protracted suppuration—Wagner-Jauregg,[2] in 1909, began a series of experiments in the treatment of certain degenerative diseases with intercurrent infections. After preliminary trials with tuberculin and various vaccines, in 1917, he inoculated with benign tertian malaria nine cases of general paralysis of the insane (six early and three advanced cases). Favourable results were reported in the early cases, three of them being still at work four years after the treatment. Wagner-Jauregg then treated further cases, allowing each patient to have eight to twelve malarial paroxysms followed by a course of six neo-salvarsan injections, until it now appears that definite cures are claimed. Gerstmann (quoted by Templeton[3]) states that of 296 cases treated, and in whom it was possible to make complete observations, remissions of varying degree occurred in 202, while 112 showed complete remission with the disappearance of mental disturbances and a return to former business capacity (that is, remission occurred in 68 per cent. and complete remission in 38 per cent. of cases treated). Weigandt[4] reports that, of fifty cases treated, remissions were obtained in 88 per cent. and good remissions in 48 per cent.

So encouraging were these reports of the results of treatment by malaria that early this year (1923) we began to treat cases of general paralysis of the insane at the West End Hospital for Nervous Diseases by the same method. Apart from those reported by Wagner-Jauregg and Gerstmann[5] in Vienna, the only cases in which the treatment appears to have been tried (for example, those recorded by A. R. Grant[6] and W. McAlister[7]) are those who have become in-patients in mental hospitals—that is, cases who presumably have reached a stage sufficiently advanced as to render them certifiable under the Lunacy Act. It was considered, therefore, that if improvement is obtained in such cases, even more might be achieved in earlier cases. In the out-patient clinic of a hospital for nervous diseases general paralysis of the insane is frequently met with in its earliest stage, and if cures result from the treatment, as the originators of the method claim, one would naturally expect such early cases to show the maximum response.

At the time of writing fourteen cases have been treated: 11 of the cases were in a relatively early stage of the disease, 1 resulted from congenital syphilis, and 2 cases, treated for purposes of comparison, were advanced. Apart from the physical signs of the disease, the diagnosis in our cases has rested upon the presence of an increased number of lymphocytes, positive globulin and Wassermann reactions, and a colloidal gold reaction curve of the "paretic" type in the cerebro-spinal fluid, as well as a positive Wassermann reaction in the blood serum. In only one case (of undoubted general paralysis of the insane) was the colloidal gold curve "leutic" in type. Those cases tested have also shown the characteristic speech inscription described by E. W. Scripture.[8]

Through the courtesy of Dr. G. C. Low and Dr. Gregg of the Hospital for Tropical Diseases, Endsleigh Gardens, the first sample of malarial blood was obtained from a man suffering from benign tertian malaria who had not been treated with quinine: 2 c.cm. of the malarial blood were injected into the subcutaneous tissue of the interscapular region of the first case. Subsequent inoculations were made from case to case of general paralysis of the insane as each developed malaria. Wagner-Jauregg recommends that the blood be removed from the malarial patient during the febrile stage, but we find that this is not really necessary as the inoculated subject becomes just as efficiently infected if the blood is taken at any stage (pyrexial or apyrexial) of the period over which the attacks are permitted—that is, before the administration of any quinine. All cases were easily infected, only one injection of malarial blood being necessary. The incubation period varied from nine to twenty-four days in different cases (average period fourteen days). In four cases after about the fourth attack, the tertian ague was replaced by one of quotidian type, a phenomenon also observed in some of Wagner-Jauregg's patients. As a rule twelve attacks of malaria were permitted, the infection then being terminated by one or two intramuscular injections of quinine bihydrochloride (gr. xv) followed by the oral administration of quinine sulphate (gr. v daily) for a week. This treatment has proved quite efficacious as regards the malaria, no relapses having occurred. In each case the earlier malarial manifestations were pronounced, the temperature rising to 103°-105° F. during the febrile stage; the last four or five attacks were usually not so severe, the maximum temperature becoming progressively lower. Although the malarial infection had passed through fourteen cases it was just as potent for the purpose of transmission after the fourteenth case as at first. Following the termination of the malarial period, novarsenobillon was given intravenously in full doses (0.9 gram) at weekly intervals for six weeks.

Of the twelve early cases of general paralysis of the insane treated, all but one exhibit varying degrees of improvement; in two cases the improvement has been remarkable, and both have returned to work. Another case only recently treated continues at work that he was unable to do for some weeks prior to treatment. Brief details of these cases are as follows:

CASE I.

F. B., aged 38; general paralysis of the insane, early. In March, 1921, the patient first began to have difficulty with regard to speech. When first seen (August 25th, 1922) he complained of headache and insomnia and difficulty in articulating certain words. Mentally, he was easily agitated, talkative, laughed inanely without adequate cause, and had a high opinion of his accomplishments, in spite of the fact that he was unable satisfactorily to carry out his duties as a school caretaker.

Physical Signs.—Pupils: right excentric and sluggish to light; left normal. Lingual and labial tremors. Knee-jerks and ankle-jerks brisk; plantars flexor. Wassermann reaction: blood positive; cerebro-spinal fluid, 21 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive; paretic curve.

Present Condition (five months after malarial treatment).—His remarkable improvement is a matter of general comment in his locality. He has lost his exaltation, answers all questions rationally, and is able to carry out his work satisfactorily.

CASE II.

R. C., aged 30; tabo-paresis. All the patient's symptoms were said to date from the time he was wounded while serving with the army in 1918. He complained of headache and "fits" (which occurred every few weeks). Later, his memory began to fail and speech become difficult. Early in July, just prior to treatment, he was found "wandering" by the police and taken to the infirmary with a view to certification. Mentally he was somewhat exalted, excitable at times, alternating with fits of depression. He was also self-satisfied, suspicious, and occasionally experienced aural hallucinations. His speech was slurred and his memory poor.

Physical Signs.—Pupils: right greater than left; left shows no reaction to light, right sluggish. Lingual and labial tremors. Knee-jerks and ankle-jerks absent; Rombergism present. Wassermann reaction: blood positive; cerebro-spinal fluid, 10 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive; paretic curve.

Present Condition (three months after malarial treatment).—Mental condition shows a remarkable improvement. No seizures have occurred. Speech is practically normal, and there is no evidence of hallucinations. Has now started light mechanical work at a garage.

CASE III.

J. G., aged 30; general paralysis of the insane. Had syphilis in 1914 and was inadequately treated. In October, 1922, he "lost his speech" momentarily; this recurred every month or so until a few weeks ago, when he became speechless for twenty-four hours and also suffered from transient hemiplegia. For the past few weeks he has been quite unable to carry on his work as "decorative artist." Mentally he was somewhat elated, unduly inquisitive, and slow in replying to questions. His wife stated that he frequently talked "nonsense."

Physical Signs.—Pupils: right greater than left; Argyll Robertson; slight lingual tremors. Knee-jerks present, right greater than left. Ankle-jerks present. Wassermann reaction: blood positive; cerebro-spinal fluid, 18 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive: paretic curve.

Present Condition (six weeks after treatment).—Mentally brighter and answers questions rationally and intelligently; he is carrying on his work quite satisfactorily. No further attacks of speechlessness. His wife states that he no longer talks nonsense.

In four other cases the improvement is very definite, while four may be said to have improved slightly. Of the two advanced cases treated, one was a profound dement in poor physical condition and had no conversation beyond a grunt. At the conclusion of the malarial attacks he was able to give some details of his naval service, but relapsed after a few weeks into his former mental state; his physical condition, however, is greatly improved and there is no evidence that his mental condition is becoming worse. The second advanced case showed no very definite change beyond a slightly increased degree of intelligence.

It is recognized that a considerable period from the time of treatment must elapse before results can be accurately gauged and the method of treatment assessed at its true value, especially as the full effect of treatment is said not to be manifest immediately after the termination of the malarial attacks but to appear gradually. Thus far, however, the results in early cases are distinctly encouraging.

In conclusion, we desire to express our thanks to Dr. G. C. Low and Dr. Gregg for enabling us to obtain malarial blood, and to Dr. A. Y. Cochrane, casualty physician at the West End Hospital for Nervous Diseases, for much valuable assistance.

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THE SERUM-ALDEHYDE TEST APPLIED TO TRYPANOSOMIASIS:

OBSERVATIONS ON CAMELS.

BY

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IN August, 1921, a brief note was published in the BRITISH MEDICAL JOURNAL[1] of a new reaction for kala-azar discovered whilst investigating the behaviour of the serums of various diseases to commercial formalin in the light of the Gaté and Papacostas reaction for syphilis. The reaction in kala-azar, which differs from the now discredited reaction in syphilis in that the serum becomes first opalescent and then opaque as well as firmly solid in the presence of formalin, was independently discovered by Mackie and Fox[2] working together, and was carefully investigated by L. E. Napier[3] of the Kala-azar Research Department of the Calcutta School of Tropical Medicine, who put it on such an assured footing that it is now used and accepted wherever kala-azar occurs.

In my original notice I suggested that the reaction should be tried in trypanosomiasis, and might prove positive in that disease in view of the close relation of the Leishman-Donovan body to the trypanosome, but I have not been able to find out whether any work has been done on this line in countries where human trypanosomiasis is seen.

Recently I have been able to test the reaction in surra, a trypanosome disease of camels, which causes much sickness and mortality in camel corps, as it is not easily diagnosed except at uncertain periods when the trypanosomes appear in the blood in large or small numbers. The disease is easily cured by tartar emetic provided that no trypanosomes are found in the blood at the time of injection; frequently even small doses are rapidly fatal in the presence of circulating trypanosomes.

The reaction is performed by adding a large drop of commercial formalin (which must smell strongly of formalin) to about 1 c.cm. of the serum in a test tube. The result is read in twelve hours, but is even more definite in twenty-four or forty-eight hours. As in the same test for kala-azar, strictly sterile serum is desirable, but not essential—an important point where one may have to depend on semi-skilled assistance for much of the field routine work involved.

RESULTS OF SERUM-ALDEHYDE TEST IN SURRA.

Camel.	Blood for Trypanosomes.	Days under Treatment.	Amount of T.E. given.	Result of Serum Test.
1	++	nil	nil	Opalescent and gelatinous; tube can be inverted.
2	++	nil	nil	Ditto
3	++	nil	nil	Ditto
4	+	10	0.2 gm.	Opalescent and firmly gelatinous; tube can be inverted.
5	−	27	11.45 gm.	Opalescent and gelatinous; tube can be inverted.
6	−	50	30.0 gm.	Faintly opalescent, liquid, slightly viscous.
7	−	—	—	Clear and liquid.
8	−	—	—	Clear and liquid.

Camels 7 and 8 were healthy animals used as controls.

The value of the reaction is that it does not depend on the presence of trypanosomes circulating in the blood in demonstrable numbers, and would remain positive in undiagnosed chronic or carrier cases which might appear healthy and whose blood would be negative to trypanosomes except after a daily film examination extending perhaps over weeks, which is not practicable as it would involve careful search of every camel's blood every day in every camel corps. Surra is the only haematozoic disease of camels known, so that the reaction would not be given in any other camel disease.

Moreover, as pointed out to me by an army veterinary officer, all camels bought by Government could be tested for surra, active or latent, before being accepted.

In most cured cases of kala-azar the reaction is entirely lost by the blood serum a few months after completion of treatment, and it would appear that the same may be true in surra, in which disease the reaction is now being worked out on a large scale. It would be of great interest to try the reaction on "cured" cases of human trypanosomiasis as well as on active cases, as it might well prove of value in indicating a definite cure; but as this disease does not occur in India it cannot be worked out here.

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THE *Boston Medical and Surgical Journal* for November 15th, 1923, includes the text of the speeches delivered at the opening of the Thorndike Memorial Laboratory. This building, which is in connexion with the Boston (U.S.A.) City Hospital, contains a spacious and modern *x*-ray department, and also laboratories for research. This, it is said, is the first organization of its kind in the United States, and constitutes a definite recognition of the value of medical research to a municipal hospital. A ward for about twenty patients is provided, and is divided into small rooms, each holding from one to six beds. The building has been erected in memory of Dr. W. H. Thorndike, who was on the surgical staff of the Boston City Hospital from 1866 to 1883.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF OPHTHALMOLOGY.

Sir JOHN H. PARSONS, C.B.E., D.Sc., F.R.S., F.R.C.S., President.

DISCUSSION ON THE CLINICAL SIGNIFICANCE OF SCOTOMETRY.

DR. A. H. H. SINCLAIR (Ophthalmic Surgeon, Royal Infirmary, Edinburgh), in opening the discussion, briefly outlined the great advances that had been made in recent years in this mode of clinical investigation. The work of Bjerrum had produced great changes in their methods. They had now a most delicate test due to the general adoption of small objects. Dr. Sinclair showed a large number of charts of the normal visual field, with its variations due to diminution of the size of the test object, the conformation of the blind spot, the amblyopic zone about it, and its extensions due to the obstruction produced by the trunks of blood vessels. In pathological conditions all these features were subject to variation. There were areas of depression in the general fields, the amblyopic areas were extended, and near areas of saturation or scotomata appeared in these latter areas. Detailing the variations of these conditions in various diseases, he contrasted those found in toxic states such as tobacco amblyopia, depressions such as severe anaemias, glaucoma, and direct affections of the optic nerve by local inflammations and growths. He insisted that, invaluable as was the clinical significance of fields of vision and of their variation, they must be always related to other clinical symptoms—each was complementary to the other.

DR. GORDON HOLMES (London) emphasized the numerous factors on which accurate results in scotometry depended. In the first place the patient must understand fully what was required of him, and during the subsequent tests as few questions as possible be asked. In the next place the test employed should be adjusted to the intelligence of the patient, and no more be demanded of him than he was capable of. The patient's attention must not be tired by too prolonged an examination, nor be distracted by questions, unnecessary movements, or extraneous sounds. In this last respect many self-recording and other complicated perimeters failed or proved unsatisfactory for accurate work, since the noise made by their mechanisms might distract attention from the fixation point, or the perception of the test object might be irregular, since attention to it might be at one moment excited, at the next dormant, according as the mechanism was noisy or silent. Further, as any jerkiness or alteration in the rate of movement of the test object was a stronger stimulus to extracentral vision, it was essential, especially in mapping out partial scotomata, that the rate of movement be regular and uniform. He believed that more accurate results could be obtained when a test object was simply moved by the hand than when a complicated apparatus was employed. More, perhaps, depended on the observer than on the ordinary patient; patience was essential, and he should, at the same time, be able to obtain the friendship of the patient and his co-operation and interest in the examination. Further, the observer must be careful to avoid suggesting a response to the patient by varying the rate of movement of the test object, by an expression, by an attitude, or in other ways. In the scotometer which Sir William Lister and he had employed during the war, and in that since devised by Mr. Bishop Harman, the observer was unaware of the actual results, and he could repeat his tests uninfluenced by previous records, and he was therefore more likely to obtain true and objective results than when the record of each previous test was exposed to him. The third factor in determining the actual chart obtained was the instrument employed; this seemed to him the least important factor. The two chief desiderata were that the apparatus should be as simple as possible and that it should permit a large number of repeated observations to be made without tiring the patient or interrupting the examination.

MR. MALCOLM L. HEPBURN (London) confined his remarks to the significance of scotometry in affections of the choroid. Assuming that pigmentary degeneration of the retina was a choroidal affection, there were three types of field associated with diseases of the choroid: (1) the fields met with in pigmentary degeneration of the retina, and (2) the fields associated with choroidal scars—(*a*) multiple scars, (*b*) isolated deep scars. These fields indicated certain points in regard to pathology, prognosis, and treatment. The first point in connexion with the first-named fields was the isolated and separate character of the scotomatous areas, which occurred in a regular and definite order until the whole of the retina became eventually involved. The ring scotoma, at first incomplete, was quite a separate and distinct defect, the extreme peripheral and central areas being free; this was followed by defects in various peripheral areas which could be traced in their various stages, and lastly the macula region became involved.

With regard to the pathology, one of the earliest theories was the watershed theory of Nettleship, which accounted for the ring scotomata by suggesting that the communication between the anterior and the posterior choroidal vascular systems formed a weak anastomosis. He thought that this anastomosis occurred too far forward to explain the ring scotoma, and that there was a considerable amount of evidence to show that the posterior ciliary vessels were alone concerned in the nutrition of the visual parts of the retina. A circulatory origin is a more probable hypothesis, by reason of the isolated character of the scotoma; it was noticed also in certain specimens that parts of the choriocapillaris were destroyed, which was a little difficult of explanation by the generally accepted view that the choroidal circulation is a freely anastomotic system. Opponents of the vascular theory of pigmentary degeneration said that in many cases no affection of the capillaries was anywhere noticeable, and that therefore the cause could not be attributed to a defect of the choroidal circulation; hence one of the latest theories (Collins) was that the affection was a primary degeneration of the neuro-epithelial layer; against this it was difficult to explain the presence of the typical pigmentary disturbances which were characteristic of the majority of cases. Also in Raynaud's disease, which was essentially a capillary and small arterial circulatory affection, there were many clinical types suggestive of anything between spasm of the vessels and definite disease of the vessel walls. If, on the other hand, the posterior ciliary circulation was regarded as an end artery system, for which there was a considerable amount of anatomical proof, the scotomata could be easily explained. The fields suggested that the posterior ciliary vessels branched into two main divisions, one supplying the mid-peripheral region and one the extreme periphery; when the mid-peripheral vascular system was affected the ring scotoma was formed, and when the extreme peripheral system was affected scotomata involving the outer part of the visual field resulted. A separate and distinct blood supply to the macula region, of a healthier and fuller type (for which again there was some anatomical support), accounted for the resistance offered by this particular part to the invasion of degenerative processes. In support of the contention that the posterior ciliary circulation was an end artery system, it was noteworthy that Usher, in his genealogical researches (Royal London Ophthalmic Hospital Reports), found Raynaud's disease and pigmentary degeneration of the retina in different members of the same family; Mr. Hepburn had suggested once before that a good name for pigmentary degeneration would be Raynaud's disease of the choroid.

With regard to prognosis, since the degenerative processes progressed in a definite order, the macula region being the last to go, and the lower temporal field immediately prior to this, we might definitely assure our patients that so long as this latter part of the visual field could be

discovered, in however small a degree, the central vision would not be affected.

Treatment.—The importance of settling definitely the cause of the scotoma was emphasized when the question of treatment arose. Unless the scotoma was due to an affection of the nerve elements it was utterly useless to prescribe strychnine and nerve tonics, which was the usual practice; whereas if the fault lay in the capillary circulation it was obvious that treatment must be directed towards keeping the capillaries full of blood and in as healthy a condition as possible prior to the formation of degenerative changes in the vessel walls. He was in the habit, as far as possible, of advising his patients never to winter in England or in any cold climate.

The two types of field met with in choroidal scars were the insular type and the sector-shaped defects extending in a wedge-shaped form into the extreme periphery. With regard to the former, pathological investigation showed that at the point where the scar occurred the retinal elements, including the nerve fibre layer, were entirely lost in a mass of fibrous tissue which bound the retina to the choroid, while on each side of this scar the retina was perfectly healthy in all its layers, and accordingly the fields of vision showed that the surrounding parts still retained their function. The wedge-shaped scotoma, when first observed, was associated with scars near the disc, and thus received the name of choroiditis juxta papillaris (Edmund Jensen). There was no justification for this special classification, since the condition was by no means a special clinical entity. He had found the sector-shaped defects in choroidal scars at other places than near the disc, and a point to be observed was that the sector scotoma remained of a fairly uniform size in whatever position the scar was situated. This scotoma existed as a permanency, and did not vary in size or extend to the neighbouring parts as time went on. It had been suggested that this scotoma was caused by the nerve fibre layer being affected at one part, so that the branches which passed towards the periphery were cut off much in the same way as the terminal branches of any sensory nerve were involved when the main trunk was severed or pressed upon. Against this was the fact that the insular scotomata were obviously caused by the cicatrization of the retinal tissue, including the nerve fibre layer, and yet remained circumscribed without involving the neighbouring retina; and also, owing to the anatomical distribution of the nerve fibres, the sector-shaped defect would be considerably larger the nearer the disc the scar was situated. Although it was true that the scotoma was rather larger when the choroidal scar was situated near the disc, yet in his opinion there was not so much difference in size as would be expected if the scar involved the nerve fibres in a position where possibly more than one-third of all the nerve fibres met as they converged towards the optic nerve. This idea received support from Dr. Sinclair's charts. In these last two types of cases the question of prognosis and treatment did not arise, as the scotomata were permanent, and no treatment was of any avail; besides which they were practically unnoticed by the patient.

It seemed, therefore, that there was considerable evidence that the scotomata found in connexion with diseases of the choroid pointed very strongly towards the theory that the circulation derived from the posterior ciliary vessels was of the nature of a terminal vascular system, and subject to the weaknesses common to such systems in other parts of the body.

Mr. H. NEAME (London) discussed the variation in size of paracentral scotoma in a case of pituitary enlargement. He showed charts illustrating this variation in a case of pituitary enlargement in a woman. In the first chart, made on April 18th, 1923, the scotoma in the left field extended through 18 degrees vertically by 8 degrees horizontally. On April 28th the scotoma extended through 30 degrees by 12 degrees. On June 20th, although a smaller object was used, the scotoma was not larger, but was actually smaller than on either of the previous occasions—15 degrees by 8 degrees. Other evidence of pituitary enlargement in this case were: diminution of left temporal field to 20 mm. white square; left temporal hemianopsia to 20 mm. red square. There was also definite *x*-ray evidence of expansion of the sella turcica.

Mr. N. BISHOP HARMAN (London) said that he found amongst post-graduate students much confusion of thought arising from the diversity of methods employed in the work of perimetry. They could not understand why some workers employed huge screens at a long distance whilst others worked at a convenient distance. He thought and believed it was true that distance, size of test object, and luminosity of the object, which included to some extent colour, were all relative terms. If this were so, then they were bound to use the test which was easiest for the patient. There could be no doubt about the brilliance of the work of Bjerrum, but his large and long-distance screen needed great patience on the part of the doctor and more than ordinary concentration by the patient, whilst the time taken resulted in exhaustion or even a species of hypnotism. In his experience this meant unreliable results, and he pleaded for the use of simpler methods such as he had suggested. Again, much depended upon whether the test object passed from the blind area to the sighted, or the reverse. He thought that the results obtained by passing from the sighted to the blind area were defective, and that all should agree to work from a known blind area to the sighted; then the findings would be more comfortable to a standard. Finally, he found that in general toxic conditions where there was a central defect there was almost always a peripheral defect, provided care was taken in the manipulation of the lighting.

Dr. RICHARD KERRY (Montreal) had had a case of superior quadrantic hemianopsia apparently following cerebral haemorrhage, in which the blind area on one side came down about 30 degrees below the horizontal. He would like to ask whether the tendency was to regard this condition as due to the segregation of the nerve fibres from the different sides in bundles or whether it could be regarded as being due to a peripheral effect which had persisted longer on one side than on the other.

Major R. E. WRIGHT, I.M.S. (Madras), agreed that Dr. Sinclair had well shown that amblyopic areas around the blind spot were common to many conditions. Such amblyopic zones projected on the screen had been shown as relative areas of blindness or depressions of the field. The speaker had affirmed that such zones had not any great or peculiar value in glaucoma. Did he also include what was commonly termed enlargement of the blind spot? The term "enlargement of the blind spot" in glaucoma usually implied an absolute defect continuous with the blind spot which was determined by comparison with the opposite side.

Sir JOHN PARSONS (London) was glad to hear the remarks of Dr. Gordon Holmes and Mr. Bishop Harman, drawing attention to the difficulties of scotometry and the interpretation of its results. It was not generally recognized by ophthalmologists that the amblyopic area round the blind spot was a normal phenomenon, characterized by definite peculiarities—for example, of colour vision. He could not agree with Mr. Harman that variations in the size of the test objects and variations of the intensity of the light produced identical responses. The evidence of Piper and others was that, although there was a definite mathematical relationship between the intensity of stimulus and the size of area stimulated in the macular area, there was no such simple relationship for stimuli affecting the periphery of the retina. There was need for more precise investigation of normal visual responses by the periphery, and a wider appreciation by ophthalmologists of the facts already elucidated.

Mr. RANSOM PICKARD (Exeter) dealt with the following conditions: (1) Cases of glaucoma in which the fields were decreased concentrically and the blind spot showed little or no enlargement. (2) The concentric limitations of the fields in functional cases, especially those in which the limitation for 1/1000 reached between 10 and 15 degrees from the fixation spot and so passed through or near the blind spot. (3) The fields in cases in which pressure was not high but variable. (4) The influence of sepsis on the 1/1000 field. He

exhibited charts of fields taken under similar conditions with the same apparatus, and the patients were reliable—that is, the fields were comparable with each other. A normal field was shown for comparison. In all the cases central vision was 6/5 partly, except in the cases of acute and subacute glaucoma, in both of which it was 6/9 partly. The tensions were taken with the Schiotz tonometer, the weight used bringing the pointer between 2 and 4 degrees on the scale, except where the reading with the 5.5 gm. weight was greater than 4 degrees. Once he had taken a field two days before a severe acute glaucoma, and once two days before a subacute attack; in both there had been slight preliminary signs. In the first the limitation was concentric, in the other nearly so; in both there was hardly any enlargement of the blind spot.

First Group.—In this group three fields of essentially chronic glaucoma with the same features were shown. In two the 1/1000 fields had contracted within the angle which would have intersected the blind spot. For a concentric limitation to be maintained, it was necessary that the blind spot should not be much enlarged; for if enlargement occurred the field would conform to the ordinary glaucoma field. One case having a tension of 60 mm. was very interesting, for the cup was a tiny, shallow dimple. In an observation made six months later a concentric field was maintained, but the 1/1000 field was just internal to the blind spot, the tension being 55 mm. These cases showed no relationship between the size of the optic cup and the alterations in the field outline. One of them had a fairly large cup (65 per cent.), but this had had no effect upon the blind spot. The last case, with a tension of 32, a full field for 3/1000, and a diminution only in the 1/1000 field could not be considered normal because the other eye had advanced glaucoma with a tension of 100 mm. These three chronic cases formed a series of decreasing tensions, yet not differing greatly in their fields. It might seem that a generalization could be made, and be supported by other cases, that these cases progressed slowly and were very amenable to eserine; but the rapid increase to acute and subacute glaucoma in the two previous cases effectually disposed of this assumption. Nevertheless, he felt that in this type of case the outlook was better than in those showing marked enlargement of the blind spot.

Second Group.—In contrast with the above cases, three fields showing functional limitation were shown. The first was shown as a typical concentric field in asthenopia occurring in a case of pulmonary tuberculosis. The remaining three charts, each from a different patient, showed respectively the 1/1000 field outline approaching the blind spot, the latter opening out upwards, and the outline internal to the blind spot. The resemblance of the outline in the middle case to that of an early glaucoma outline was apparent. The tension in this case (19 mm.) was so well within normal limits that there would be little danger of confusing it with glaucoma; but were its tension higher, doubt might easily arise. The tension of 25 mm. in the last case, when compared with cases in the following group of variable tensions, might easily give rise to suspicion; but other circumstances led to there being little doubt as to its functional nature.

Thus a consideration of these two groups showed that (*a*) the glaucoma field might be concentric and thus resemble the typical functional limitation; (*b*) the field for 1/1000 in some functional cases resembled that for 1/1000 in some typical glaucoma cases; (*c*) serious difficulty might arise in distinguishing between these two groups in cases where the tension was near the higher normal limit.

Third Group.—The group with tension not high but variable was illustrated by four charts. In one of them (27.44 – B) the outline for 3/1000 was full, in the others a little concentrically contracted. The 1/1000 outlines were much more variable, two being fairly typical of glaucoma (A and B), the others rather of the concentric type. The variability of the tension was:

	Maximum.	Minimum.	Difference.
A	30	15	15
B	27	13	14
C	28	23	5
D	32	23	9

It was obvious that the maxima were near or above the normal limit, the minima below it; most of the cups were above the average size. Consideration of all the signs justified the diagnosis of early glaucoma. It was well known that the tension in the same healthy eye might vary at different times; but he thought that much variation with a persistent alteration in the field justified the conclusion that the intermittently high pressure had produced the alteration in the field. An increased tension which altered vision was glaucoma.

Fourth Group.—Only one chart was presented showing a limitation of the 1/1000 probably due to dental sepsis. It was not marked and was accompanied by a slight enlargement of the blind spot. It might be regarded by some as a slight retrobulbar neuritis.

Two cases (B and C) in the third group had *B. coli* in the urine, and showed an improvement in their general health as well as the field when a combined treatment by a vaccine and eserine drops was carried out. In a good proportion of glaucoma cases this bacilluria occurred, and was, he believed, a distinct factor in the causation of glaucoma.

He showed these charts as illustrations of difficulties all had to contend with; he had no royal road out of them. In doubtful border-line cases the use of eserine and a study of the subsequent alterations in the field and tension was the obvious method to employ, notwithstanding the difficulties in connecting any treatment with subsequent alterations in cases. The suggestion effect of treatment, particularly in neurotic people, was well known; if a field contraction was functional, an improvement after eserine might be due to suggestion. Yet neurotic people might have real ailments; no alteration must be called functional until any possibility of actual lesion had been excluded. There were few more difficult tasks than to detect the earliest onset of a disease in a neurotic patient when an important symptom such as an alteration in the field of vision might be similar in the two conditions.

Opener's Reply.

Dr. A. H. H. SINCLAIR, in reply, remarked that the value of the findings depended on the way in which the work had been done, and on the nature of the case. He thought that the method was of the first importance, as was also the proper understanding of the method—of what could, and what could not, be expected from it. The question of fatigue was very important, and in this connexion it was necessary that the examiner should be able to carry through the examination in as short a time as possible, not delaying over doubtful areas but rather giving the patient a short rest and testing them a second time. He agreed that unintentional interruption was bad, and that the test object should be moved freely on the end of a suitable carrier held in the hand. The size of the white or coloured test object should be changed according to the necessity of the case; this was an essential of the quantitative method. He regarded it as important that the patient should understand so far as was reasonably possible what he was desired to do—for example, keep his eye on the fixation point, etc. Intellectual honesty was an absolute essential which should be most carefully and scrupulously practised. The instruments preferred by him were a modified Priestley Smith's perimeter and the screen of Bjerrum. Mr. Neame had stated that he had not used the same size of test object at the different examinations. It was sometimes necessary to alter the size of the test at different examinations, but this should not be done except for good and necessary reasons, which were no doubt present in Mr. Neame's case. The scotoma of pituitary tumour did vary from time to time. In reply to Mr. Bishop Harman he agreed that in the employment of Bjerrum's method, or the quantitative principle, there were difficulties incidental to the method and also to the type of relative defect which this method was intended to investigate. So long as they were concerned with the diagnostic value of relative defects in the field of vision, which were recognized as being of practical clinical importance, difficulties of several kinds could not be avoided. He thought Bjerrum's method had already proved of great clinical value. With regard to the movement of the test object, it should be moved from the area of reduced to the area of best preserved vision and also in the other direction, and the intermediate position be taken as the margin of the scotoma. A colour test was of great practical value as colour, apart from the degree of illumination. In reply to Major Wright, he stated that in the early diagnosis of glaucoma absolute defects connected with the blind spot as demonstrated by Seidel were usually preceded by a wider relative failure, but this sign did occur. It was good practice to relate a scotoma to the size of the test object with which its presence had been demonstrated. This was better than using the terms "absolute" and "relative." In reply to Sir John Parsons, he agreed that conditions under which examinations of the field of vision were made were not sufficiently uniform, yet valuable facts could be demonstrated for clinical purposes under considerable range of variation in the conditions. The amblyopic zone round the blind spot was, as Sir John Parsons said, normally present, and care must be taken not to confuse the normal extensions of this zone with abnormal change. The question of the intensity of stimulus from a scientific point of view had not been under consideration; his own approach had been entirely from a clinical point of view. Mr. Pickard had shown examples of fields in glaucoma in which concentric contraction was the principal feature. He himself had seen such, but using the quantitative method they were, in Dr. Sinclair's experience, very rare.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ERYTHROMELALGIA TREATED WITH COLLOIDAL CALCIUM.

In view of Dr. McCormick Mitchell's account[1] of the results of the treatment of urticaria with collosol manganese, I should like to record the following case.

I have had under my care for the last three years a patient presenting that rare condition first described by Weir Mitchell under the term "erythromelalgia." A woman, 55 years of age, suffers, particularly during the warmer months of the year, from great pain, redness, and swelling of the feet. The swelling is much aggravated by the fact that her household includes five wage-earners, and she is "cumbered about much serving." By the end of the day the swelling of the feet is extreme, although pitting is but slight, and the congestion is almost cyanotic. Treatment of these cases is disappointing, and I had achieved no success whatever throughout two summers when this year I decided to try the effect of colloidal calcium. Beginning with 0.25 c.cm. of "collosol" calcium subcutaneously, I gave at weekly intervals six other injections each of 0.5 c.cm. It was difficult at first to estimate the degree of improvement as the patient's symptoms had previously varied a good deal from day to day, but any doubt as to the benefit of the treatment was dispelled after the fourth injection, which coincided with the advent of some extremely hot weather at the beginning of July. Ordinarily the patient would have been moving about her house with great difficulty, the pain in the feet being of an intense burning character, and the swelling over the dorsum bulging enormously. Instead of that she was able to walk with comfort in a pair of slippers of normal size and shape. This improvement has been maintained up till now.

I do not say that the condition is cured, but that the treatment has been of the greatest value cannot be denied. Further treatment just now would be inconclusive as there is in her case a spontaneous alleviation of the symptoms as the weather cools. In the event of a recurrence next year I would be inclined to repeat the course with the dosage doubled. I had never tried calcium in the form of lactate in this patient, but in view of the fact that that salt is found to be of benefit in certain cases of Raynaud's disease and of angio-neurotic oedema (as it is in urticaria) it would be of interest to know the effect of a colloidal preparation in these conditions.

The etiology and pathology of the angio-neuroses are shrouded in obscurity, and it may be that time will elapse before they emerge from the slough of our ignorance, but perhaps it is of more than passing interest to note that on one occasion shortly after the patient came under my care I gave her a mixture of potassium iodide. After a 15-grain dose she passed a very restless night and I was sent for the following morning to find her with the shoulders, buttocks, and front of the thighs covered with large wheals, some of them already bullous and containing a clear exudate. The mucous membrane of the mouth was much swollen, and she had had a sensation of choking which was passing off when I saw her. I stopped the iodide, and have never given it since, but would be tempted to risk investigating this idiosyncrasy again after a further course of calcium.

Dundee. JAMES M. STALKER, M.B., Ch.B.St. And.

ALCOHOLIC CIRRHOSIS.

THE two following cases of cirrhosis of the liver appear to me to be of sufficient interest to place on record:

Case 1.—Male, aged 45, a beer drinker; atrophic form. When first seen he showed ascites and oedema of legs and scrotum. He was tapped fifteen times at intervals of ten to fourteen days; one and a half to two gallons of straw-coloured fluid were removed at each tapping. At that time the patient abstained from beer and indulged only in small tots of whisky. After the fifteenth tapping the ascites and oedema did not return for eighteen months. He then returned to his beer, and almost immediately the same train of symptoms reappeared. A further series of thirteen similar tappings completed this attack, the beer being stopped meantime. He remained free for two years, then his wife's sudden death led him to begin drinking beer heavily again, and the same train of symptoms recurred. As I was away on active service he refused to see a doctor. He was therefore not tapped again, gradually sank, and died. In all, from the commencement of the first attack, this patient lived five years.

Case 2.—Female, aged 53, a spirit drinker; hypertrophic type. When first seen she had ascites but no oedema of the legs. She was tapped twelve times at intervals of three to five weeks; at each tapping one to one and a half gallons of straw-coloured fluid were removed. After the twelfth tapping the fluid did not reappear. The patient did not altogether give up alcohol, but diminished the quantity. She is still alive and enjoys fair health. The period from the commencement of illness to the present time is five and a half years.

In neither of these cases did the site of puncture give any trouble, although on several occasions there was rather severe haemorrhage owing to puncture of superficial vessels, but pressure easily controlled this. Medicinal treatment was of no avail: potassium iodide and blue pill were tried but could not be tolerated.

Sanderstead. JOHN FINNEGAN, *M.C.*, M.D.

[1] BRITISH MEDICAL JOURNAL, September 29th, 1923, p. 563.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the Edinburgh Medico-Chirurgical Society was held in the Royal Infirmary on November 21st, with Sir DAVID WALLACE, President, in the chair. The following clinical cases were shown.

Mr. J. M. GRAHAM showed a case of haemophilia in a boy aged 8, illustrating the value of blood transfusion as a means of arresting the haemorrhage.

There was no family history of haemophilia and this condition was not suspected till circumcision was performed when he was 15 months old, and bleeding persisted for several days. Since the age of 2 he had seldom been without some haemophilic sign or symptom. In August, 1923, he cut his foot and the usual methods of attempting to arrest the bleeding completely failed. Signs of collapse developed, a donor was obtained and 500 c.cm. of citrated blood was transfused. During the operation the wound was exposed and clotting took place after 200 c.cm. of blood had been transfused. He made an excellent recovery, but haemophilic symptoms had recurred since then.

It was therefore obvious that although transfusion of blood might have an excellent temporary effect it would not prevent recurrences at a later date. The suggestion was made that possible donors for haemophilics should have their blood tested before the emergencies arose.

Miss GERTRUDE HERZFELD showed examples of two rare acute abdominal conditions in children.

The first case was that of acute cholecystitis in a girl aged 6½ years. Four days before admission vomiting and acute abdominal symptoms began and persisted: her mother thought she looked a little yellow. Definite resistance was made out in the right hypochondrium and immediate operation was decided on as she had an obvious infection. A right rectus incision was made, and an enormously distended gall bladder appeared, from the fluid of which paratyphoid organisms were isolated. She made an uninterrupted recovery.

The second case was that of a Meckel's diverticulum with perforation in a boy of 3 years. He was admitted to hospital with a two days' history of melaena, but under chloroform no abnormal abdominal swelling could be made out. He was treated medically, and ten days later he developed suddenly an "acute abdomen." Immediate operation revealed a diverticulum 2½ feet from the ileo-caecal valve with a small perforation at its junction to the small intestine. Four inches of ileum was resected and an end-to-end anastomosis performed. Dr. James Dawson cut sections of the ulcer, which showed mucous membrane with acid-secreting cells resembling that of the stomach.

Sir HAROLD STILES showed two cases:

A male, aged 50, who had suffered from tic-douloureux, the symptoms commencing suddenly eight years ago. Attacks at first were preceded by a tingling sensation in the region of the right molar tooth. The condition became gradually more intense and in 1919 a portion of the inferior dental nerve was resected: complete relief resulted for about a year. The pain then recurred, involving the second and third divisions of the nerve and rendering life almost unbearable. Division of the root proximal to the ganglion, the "physiological operation," was carried out, which operation was first performed by Frazier of Philadelphia after physiological experiments made by Spiller. The patient has been free from pain since the operation. There is complete anaesthesia in the distribution of the fifth nerve, but he is able to chew equally well on both sides.

A male, aged 62, who had the anterior half of the tongue excised for epithelioma in April, 1921; six weeks later the glands in the digastric and carotid triangles were removed. These glands under the microscope showed no evidence of malignancy. A few weeks ago, however, hard glands were detected in the lower carotid region and were removed together with the lower part of the sterno-mastoid, a portion of the external jugular vein, and part of the vagus, since they were fixed and adherent.

Mr. J. W. STRUTHERS showed two cases:

A man of 53 years, suffering from osteitis fibrosa in a relatively mild form, who had been admitted to hospital with a compound fracture of the right forearm, the result of an accident. *X*-ray examination showed the right radius thickened and curved in its

distal half with irregular calcification and a cyst-like appearance at the distal end. The right tibia was curved forwards and considerably thickened with irregular calcification, which was also present in the head and upper part of the right humerus. The Wassermann reaction was negative, and he had no symptoms arising out of the bony lesion.

A case of severe haemorrhage following gastro-enterostomy with clamps. The operation was simple, but on return to bed symptoms of severe internal haemorrhage developed and when the abdomen was reopened bleeding vessels were found on the posterior line of suture.

Sir ROBERT PHILIP showed three cases of extensive multiple tuberculous lesions illustrative of two points in treatment: the length of time necessary to get good results, and the importance of employing a suitable antigen (tuberculin) constantly while under treatment. One patient had had tuberculous disease of the tibia with a chronic discharging sinus and much evidence of toxaemia: the local process was now healed and she had put on nearly 2 st. in weight. The second patient was a "mass of sores," who had been treated for twenty months. The sinuses had all healed and she had gained 3 st. in weight. The third patient had twenty-three discharging sinuses with severe toxaemia: she had been under treatment for twenty-six months. The sores with one exception were now healed, and she had gained nearly 2 st. in weight.

Professor LOVELL GULLAND showed two cases:

A case of bronzed diabetes, or haemochromatosis, in a female. The diabetes was not of a severe type, but the point of interest was the distribution of the pigment, which was very definite over the front of the abdomen and thorax, but did not show nearly so much on the exposed parts.

A patient with Addison's disease who was sent to hospital as an undiagnosed gastric case. In the course of the routine examination marked pigmentation of the Addison type was detected on the inside of mouth, cheeks, hard and soft palate, and gums; this had increased since admission, and the blood pressure had become lower. The liver was enlarged and hard, and the question arose whether this was only an incident or whether the condition was one of neoplastic involvement of the suprarenals secondary to the liver. There was no other evidence of tuberculosis.

Dr. R. A. FLEMING showed a case of hemiparesis, astereognosis, and homonymous hemianopia in a man aged 56 whose Wassermann reaction was negative. He suggested that the lesion was one of thrombosis in the right occipital region involving the sensory, and also possibly the motor, part of the posterior half of the internal capsule. The patient had improved considerably under potassium iodide.

Mr. HENRY WADE showed a case illustrating the operative treatment of chronic pleural empyema by a two-, or possibly three-, stage operation.

Stage one is carried out by making a horseshoe flap, exposing three ribs at the most dependent part, and resecting and establishing very free drainage.

Stage two is carried out about three months later; the ends of the horseshoe-shaped incision are extended, and this flap of skin and muscle is dissected up. The chest wall over the cavity is excised. The subscapularis and infraspinatus muscles are detached and the lower portion of the scapula beneath the spine is removed. The separated muscle tissue is used as a graft to fill the upper part of the cavity. The horseshoe flap is replaced.

If a third stage is required it consists of the replacement of the flap.

In all cases operated on by Mr. Wade healing had been rapid and the ultimate result most satisfactory.

Dr. MURRAY LYON showed a case of acute nephritis which failed to react to ordinary medical measures. After three months' medical treatment Sir David Wallace "decorticated" the right kidney, the result being a temporary improvement in the urinary excretion for two weeks. Six weeks later the left kidney was "decorticated" and general improvement occurred, both as regards the urine and the general oedema.

Mr. JOHN FRASER showed a patient with developmental tumour of the hypophyseal stalk, who was admitted to hospital complaining of adiposity, squint, headache, and deterioration of vision. *X* rays revealed the tumour, which was partly cystic, calcified, and probably epithelial in structure. Some ten similar cases were on record, with successful operative removal in one instance. Extensive decompression of the right side of the skull was carried out with considerable improvement.

Dr. NORMAN CARMICHAEL showed a case of congenital pyloric hypertrophy in a male infant of 2 months, treated successfully by operation; also a cretin boy with characteristic features.

Dr. L. S. P. DAVIDSON exhibited a case of lead poisoning in a man who worked as an oxy-acetylene blower in a ship-breaker's yard, and showed the typical blue line below the few teeth he possessed, weakness of arms, anaemia, and punctate basophilia. The interest of the case lay in the fact that lead poisoning could occur at this work. He had to cut bolts or rivets with intense heat; he showed no symptoms while working in the open, but when working in the "tunnel shaft" symptoms appeared. The rivets were fixed in position with a collar and thread saturated in red lead. The intense heat of the blow-lamp broke up the red lead into fine particles, which he inhaled.

Dr. W. T. RITCHIE showed a woman, aged 58, suffering from chronic mitral incompetence who developed auricular fibrillation. She was treated with tincture of digitalis, and after the signs of cardiac failure had disappeared quinidine sulphate was given. Normal rhythm was restored after 0.8 gram had been given, and it had been maintained for a month with 0.2 gram twice daily. Mr. GORDON BELL showed a case of ulnar paralysis following a supracondylar fracture of the humerus. At an operation performed to relieve the pressure it was found that the nerve still functioned normally, although the muscles of the hand were much wasted.

Mr. PIRIE WATSON showed: (1) Two cases of compound dislocation of the lower end of the ulna associated with fracture of the radius in its lower third. One was caused by a chauffeur "cranking up" his car with the thumb round the starting handle, and the other occurred in a female patient aged 74, who fell heavily when rising from bed in the dark. Both exhibited good functional results following treatment. (2) A transverse fracture of the patella which was sutured with chronic catgut five months ago. A radiogram taken recently, two days after he had slipped on an icy pavement, severely straining his knee, showed the fragments in close apposition and apparently united.

Mr. J. J. M. SHAW showed: (1) A case of loss of one eye with shrinkage and distortion of the socket following fracture of the orbital plate. In nine cases out of ten the socket could be reshaped, but in a few this was not possible. In this particular case the ciliary margins, lacrymal gland, and conjunctiva were removed, the lid edges sutured, and a shade worn. (2) A case of chronic varicose ulcer of twenty-two years' duration where an abdominal pedicle was in the stage of transfer to the leg. At present the lateral end of the pedicle is implanted in the upper third of the thigh. In the next stage the end of the pedicle will be implanted near the ulcer; later the pedicle will be fully opened up and used to cover the whole area of the ulcer.

Mr. J. N. J. HARTLEY showed: (1) A case of cirsoid aneurysm in the left frontal region, which was first observed in infancy; it attained the size of a walnut and caused annoyance by a bruit which was most marked when the patient was in bed; Krogius's operation, combined with injections of alcohol, yielded good results. (2) A case showing reconstruction by a two-stage operation of a thumb mutilated by a mine explosion; the first operation was designed to preserve tissue, the second to restore function. (3) A case of a compound tuberculous former ganglion which had resisted conservative treatment; complete removal was considered advisable.

INDUCTION OF LABOUR BY QUININE AND PITUITRIN.

AT a meeting of the Edinburgh Obstetrical Society held on Wednesday, December 12th, with the President, Professor B. P. WATSON, in the chair, a communication was read by Dr. F. J. BROWNE on the induction of labour by quinine and pituitrin. The speaker referred to the researches of Oliver, Schafer, Dale, and Blair Bell in connexion with the discovery of quinine and of its effect in producing uterine contractions, and to the investigations of Fries, Haugh and Meyer, Stein and Dover, and Cron, and of B. P. Watson on its employment in the induction of labour. In 1922 Watson had published the results obtained in a series of 195 cases, in 90 per cent. of which labour was successfully induced with no maternal mortality and a foetal death rate of 6 per cent.; none of these deaths could fairly

be attributed to the use of pituitrin. The present communication was based on a series of forty-four cases; most of these had suffered from purulent vaginal discharges and were therefore unsuitable for induction by the ordinary mechanical methods. The technique followed in the majority of cases was that advised by Watson—namely, castor oil one ounce at 6 p.m., quinine hydrochloride gr. x at 7 p.m., enema at 8 p.m., quinine hydrochloride gr. x at 9 p.m., quinine hydrochloride gr. x at 12 midnight. If effective labour pains had not started twelve hours after the first dose of quinine—namely, by 7 a.m.—intramuscular injections of pituitrin were started, with a dose of 1/2 c.cm., and repeating this every half-hour until labour commenced, or 3 c.cm.—that is, six injections—had been given. That was one full course. If labour pains did not start the treatment was repeated again after twenty-four hours. The quinine hydrochloride was given dissolved in ♏ x of dilute hydrochloric acid. The indications for its use included disproportion, primiparity at term, post-maturity, toxaemia, and hydramnios. Twenty-seven of the patients were primigravidae, the others multiparae. Twenty-three of the patients were at term, three were post-mature according to the estimated dates, and eighteen were premature. Out of the forty-four cases, forty were successful—that is, a little over 90 per cent. All the failures occurred in cases where premature induction had been attempted. With regard to the time taken to start and complete labour, counting from the first dose of quinine, the time taken till the onset of labour averaged twenty-nine hours; the average duration of labour was sixteen hours. In premature cases the average time taken till the onset of labour was thirty-nine hours, the average duration of labour being nine hours. In spite of the numerous objections that had been urged against the use of pituitrin, the only unpleasant incidents the speaker had experienced were two cases of tetanic contraction of the uterus, in both cases the spasm was effectively controlled by chloroform, but in one case the child was stillborn. While twenty-six of the patients had suffered from purulent vaginal discharges, only three showed a rise of temperature in the puerperium, and in no case was this prolonged into a second day. In four cases the child had been stillborn; in only one case, however, a case of tetanic uterine contraction, could this be attributed to the pituitrin.

Dr. WILLIAM FORDYCE read a communication on rupture of the uterus following the administration of pituitrin for the induction of labour. The patient, a multipara, was admitted to the Edinburgh Maternity Hospital at term; the cervix was completely taken up, the os slightly open. Several of the previous labours had been difficult, forceps delivery being required. The pelvic measurements were normal. It was decided to induce labour at once, and after three preliminary doses of quinine gr. x three intramuscular injections of pituitrin 0.5 c.cm. were given at half-hourly intervals. After the third injection labour pains commenced; with the first pain the membranes ruptured. Following the occurrence of a long and severe pain, a quarter of an hour after the onset of labour, the patient complained of general abdominal discomfort and dyspnoea and appeared collapsed. Her symptoms were attributed by the house-surgeon to some cardiac weakness and she was treated accordingly, with temporary benefit. When Dr. Fordyce saw her two hours after the onset of labour the clinical features suggested a concealed accidental haemorrhage, more especially as on vaginal examination a considerable quantity of dark-coloured blood escaped, but on passing the fingers through the os, which was by now almost fully dilated, a large tear was found in the postero-lateral wall of the uterus. Immediate laparotomy was performed. On opening the abdomen the placenta and membranes were entirely extruded from the uterus and were found high up under the diaphragm. The foetus, which weighed 9 lb. 11 oz., was lying free in the abdominal cavity with the exception of the head, which still occupied the lower part of the uterus. The rent in the uterus extended upwards from the right utero-sacral ligament towards the fundus. A rapid subtotal hysterectomy was performed, the patient making an excellent recovery. Owing to the number of points of interest raised in the subsequent discussion it was decided to continue this at the next meeting of the Society.

ELECTROMYOGRAPHIC STUDIES OF VOLUNTARY MOVEMENT.

DR. F. L. GOLLA brought before the Neurological Section of the Royal Society of Medicine on December 13th a number of electrical records of contracting muscles in the human subject. His special technique for this purpose involved the use of electrodes which would not suffer displacement with movement and which permitted the exclusive recording of the electrical changes in a selected superficial muscle. An electrode, in the shape of an ebonite disc, was devised to fasten on to the skin by suction, and a needle was plunged down through the skin into the substance of the muscle to be investigated. The current from each muscle studied was led off by a pair of these electrodes inserted one above and one below the nervous equator of the muscle, and recorded by means of a galvanometer. A modification of this arrangement permitted the recording of muscle sounds; the place of the needle and of a cork which held it in position in the ebonite disc electrode was replaced by a length of tubing communicating with a microphone, and the microphone current was led through a telephone receiver and by an ingenious device the induced currents were led off to the galvanometer so that the muscle sounds of a pair of muscles could be recorded. The method admitted of the investigation only of superficial muscles, and of only two of these at a time, but by combining the results obtained from various pairs it was possible to obtain some knowledge of the time relations of the activity of all the superficial muscles involved in the specific movement.

He showed a number of records appertaining to the voluntary movements of the ankle-joint, the knee, and the arm, all of which movements involved synergic contraction of anatomically antagonistic muscles. An attempt was made to differentiate between the electromyograms of the two heads of the triceps. It was found that during the early part of the movement of extension the short head of the biceps alone contracted, and not until the forearm was at an angle of about 120 degrees with the upper arm did the long head of the triceps begin to contract vigorously. It was found also that the brachialis anticus began to contract in the movement of flexion after the biceps contraction, and ceased when the forearm was at an angle of 60 degrees with the upper arm. The synergism between the extensor longus pollicis and the flexor carpi ulnaris appeared to be complete, the muscles contracting simultaneously when the thumb was voluntarily extended. Similarly the contraction of the biceps and the supinator longus occurred simultaneously in the movement of supination. Contraction of the two sterno-mastoids in flexion of the head was simultaneous, but on rotation of the head the sterno-mastoid on the side from which the head was rotated preceded by about one-hundredth of a second the moderating contraction of the one on the other side. A very slow movement of rotation of the head appeared, however, not to be accompanied by a moderating contraction of the antagonistic sterno-mastoid. A simultaneous contraction of the deltoid and contralateral erector spinae occurred on voluntary adduction of the arm. The only case that Dr. Golla had been able to study of an apparent antagonism between the two muscles was in the relation between the activity of the biceps and the pronator radii teres in the movements of supination and pronation. That this antagonism was not absolute was, however, shown by the fact that when the wrist was firmly grasped by the observer, if an attempt were made to supinate or pronate against resistance, synergic contraction of both biceps and pronator occurred, the prime mover showing a greater amplitude of oscillation in the electromyogram of each movement.

Dr. Golla went on to discuss the relation of synergic contraction in voluntary movement to the tonic reflexes which had been studied in decerebrate animals, a relation which he found to be not at all clear. His records left it an open question whether anything corresponding to the inhibition of antagonists in the spastic reflex animal took place during voluntary movement. They showed that so far as cortical innervation was concerned synergism was

the rule even in anatomical antagonists. Further, the time relations of some of these contractions of antagonistic groups of muscles made it probable that the cortex made use of pre-existing spinal patterns. The cortex in effect appeared only to set going a motor discharge which was capable of infinite intrinsic variations according to the degree of resistance encountered and the velocity with which the movement was executed.

COMPARATIVE NASAL ANATOMY.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society held on December 13th, with Dr. ELIOT CURWEN (President) in the chair, Mr. D. A. CROW read a paper on the comparative anatomy of the nose as a guide to its medical and surgical treatment. In this the development of the olfactory and respiratory portions was traced throughout the various groups of animals, commencing with fishes, whose nose was exclusively olfactory, reference then being made to the Dipnoi, where for the first time the respiratory function was combined with the olfactory. In the reptilida type the two functions were still associated, the olfactory remaining in the upper compartment of the nose and the respiratory being more definitely associated with the lower. In birds, whose olfactory sense was not unusually highly developed, the same general arrangement persisted. Note was then made of the deficient olfactory sense in such species as the duckbill platypus and the cetacea, contrasting this with the very high olfactory development in creatures of nocturnal habit such as Echidna, dog, and cat. The organ of Jacobson was demonstrated in the sheep and the theory of its association with herd sense discussed. The various modifications of the respiratory part of the nose as distinct from the olfactory were illustrated by diagrams of the nose of the kangaroo and walrus. The morphology of the human nose was then dealt with, and, attention having been drawn to the very limited area devoted to olfaction, the respiratory area was defined, emphasis being laid on the intermediate area, including the accessory sinuses, which was an area of indeterminate function, and like all residual organs, became vulnerable to disease, especially when an acquired non-functioning due to nasal obstruction was superadded to the non-functioning of congenital origin. The pathology of catarrh was briefly dealt with, and a diagram presented to indicate the sequence of pathological events which resolved themselves, not into a vicious circle merely, but into a "vicious figure of eight." Emphasis was laid on the futility of operating on the nose, except as a palliative measure, after destruction of ciliated epithelium, if the expectation was to cure the patient's catarrh; for ciliated epithelium was never regenerated, and on it depended the whole question of the hygiene of the nose. But whilst a protest was entered against too frequent and too extensive nasal operations in the later stage, an appeal was made for more readily removing the causes of catarrh during the first half-turn of the vicious "figure of eight."

The paper concluded with reference to reflex nasal effects and a brief note on olfaction; it was discussed and criticized by the PRESIDENT, Mr. A. J. HUTCHISON, Drs. C. H. BRYANT, L. A. PARRY, and DONALD HALL.

Dr. NEVILLE COX showed a case of hereditary deforming chondrodysplasia in a girl aged 13. Deformity and disability in the use of one forearm began about the age of 9 and had been increasing. Recently similar changes in the other forearm began to appear. There was difficulty in fully extending the elbow and in supination of the hand. The *x* rays showed bowing of both bones of the forearm with displacement of the upper end of the radius, and irregular bone formation and bony projections from the lower end of the shafts of both bones adjoining the epiphysis. There were also bony outgrowths on the inner side of the head of both tibiae. The child was knock-kneed, and had slight lateral spinal curvature, but otherwise was in good health. None of her three brothers and sisters were affected, but the father had similar bony outgrowths on the tibiae.

Dr. G. MORGAN discussed the case, and Dr. NEVILLE COX replied.

Dr. H. M. GALT showed various microscopical slides and demonstrated the latest pattern of Dare's haemoglobinometer. Dr. L. A. PARRY discussed the haemoglobinometer, and Dr. GALT replied.

SUN TREATMENT OF TUBERCULOSIS.

AT a meeting of the London Association of the Federation of Medical Women, held on December 11th at the Elizabeth Garrett Anderson Hospital, Dr. AGNES SAVILL read a paper on the sun treatment of tuberculosis at Leysin. She had visited the world-famous clinic of Dr. Rollier, and attended the summer course of lectures and demonstrations. She gave a vivid description of the clinics (Les Frênes, and the chalets), their spacious balconies, clear and artistic rooms, filled with the morning sun, the happy patients, the brown and laughing children playing naked in the snow, and emphasized the prevailing spirit of comradeship and cheerful helpfulness. She then dealt with the more scientific aspects of the treatment, and briefly discussed the bactericidal and chemical properties of light. It was pointed out that the ultra-violet rays, though apparently of low penetrating power, yet seemed to be of great therapeutic importance, and it was suggested that their wave-length might be modified by passage through the pigment-containing basal layers of the epidermis. That the good results were due largely to the sunlight itself rather than to the pure air and good conditions was indicated by the fact that the results seemed to be distinctly poorer in cloudy weather; very severe reactionary effects could be produced by improper or careless dosage. Light, like any other therapeutic agent, required careful regulation, the dose being estimated for the individual and based on the measurement of definite reactions—namely, rise of temperature, dermatitis, exhaustion, etc. It was worthy of note that the muscular system was maintained in good condition by the action of the light alone, the patient being kept at rest without massage. Dr. Savill also dealt with the various artificial substitutes for sunlight, which could be used in this country, including the carbon arc lamp, which was giving good results at the London Hospital at the present time, the mercury vapour lamp, and the tungsten arc; this last one gave the greatest proportion of ultra-violet rays and required, therefore, short exposures. In conclusion, she emphasized the need of accurate dosage of sunlight, pure air, and lengthy treatment, if a successful result was to be obtained.

Dr. KATE PLATT read some notes sent by Dr. FLORENCE STONEY on several cases she had treated at Bournemouth with good results. Dr. CHARLOTTE BROWN said that her experiences at Leysin confirmed those of Dr. Savill, and dealt with the sun treatment in England, supplemented by arc lamp treatment in the winter.

Dr. HELEN MACKAY dealt with the experimental side of the action of light, and described her experiences in the investigation and treatment of rickets, both in Vienna and London. Miss IDA C. MANN discussed the results of the treatment at the Royal Sea Bathing Hospital, Margate.

The question of impure air as a cause of tuberculous cervical adenitis, the advisability of improving the health of the school child in this respect, and also the practical side of treatment and prophylaxis in England, including the type of patient most likely to be benefited by treatment, were discussed by Dr. LUCY NASH, Mrs. HANDLEY-READ, Drs. OCTAVIA LEWIN, M. L. DOBIE, POTTER, and C. A. S. FITTER.

AT the November meeting of the Nottingham Medico-Chirurgical Society, held at the Society's rooms, St. James Street, Mr. ALEXANDER FLEMING, F.R.C.S., of the Inoculation Department, St. Mary's Hospital, London, gave a lecture on antiseptics. He detailed the tests for antiseptic power under conditions similar to those found in an infected wound. The comparative uselessness of known antiseptics and their evanescence in the body were strikingly illustrated. The lecturer demonstrated experiments which showed the protective mechanism of the body, and the adverse influence of antiseptics on these defences against bacterial invasion.

Reviews.

PROGNOSIS AND TREATMENT.

THE *Index of Prognosis* is a companion to the *Index of Treatment* and *Index of Differential Diagnosis* produced by the same publishers, and that it has fulfilled a useful purpose is apparent from the fact that it is now in its third edition.[1]

To obtain accurate information regarding end-results is among the most unsatisfactory of medical pursuits. The more difficult the type of case, and therefore, one would imagine, the more urgent the necessity for accurate knowledge of prognosis and the results of treatment, the more elusive is the attempt to obtain reliable information. It is perhaps natural that there should be this difficulty. Few are disposed to go out of their way deliberately to publish bad results, for the reason that most likely adverse criticism will be aroused and so the reputation of the reporter will suffer. It is with unusual interest, therefore, that we have observed the method of dealing with the question attempted by the writers of this publication.

The diseases which come under discussion are arranged in alphabetical order, and facility of reference is thereby afforded; the compilation of morbid conditions is wonderfully complete, and we have been unable to discover the omission of any common and important disease.

The title of the work is not an exact indication of its contents; the volume is more than an index of prognosis and end-results of treatment, for it includes considerations of interest and value in connexion with treatment, pathology, and etiology. It is better that it should be so, and those authors who have presented their subject from the broad point of view are the most interesting of the various contributors.

In certain of the contributions there has been a tendency to limit the source from which the end-results of treatment have been obtained. A considerable proportion of the results have been derived from individual experience and the records of two large London hospitals, and these sources are somewhat too narrow to supply the information for a work of this description, for, if it is to be of value to the specialist, it must be a compilation of the widest possible collections of home and foreign literature. We realize how immense would be the task were this idea carried to fulfilment, but where certain sections of the book are concerned the sources of information have been unwisely confined.

The matter actually presented is excellent, and, taken as a whole, a very fair solution of the problem of prognosis is presented. We are less satisfied with the information which is afforded regarding end-results of treatment, but, as we have attempted to explain, this must always remain a difficult and somewhat delicate line of investigation.

That section of the volume which deals with goitre is disappointing. The classification adopted is an unusual one, and it is difficult to understand the pathological standards upon which it has been based. It is surely incorrect to classify "adenomatous and cystic goitre" under a common heading, and the term "papilliferous goitre" seems to us unhappy. The statistics dealing with the operative treatment of exophthalmic goitre have not been brought up to date, and we would have been glad of more information as to when operation is indicated and as to the dangers of interference during periods of toxicity.

After perusal of the volume the reader naturally asks himself the question, Does this book fulfil the object for which it presumably has been written—namely, to supply in accessible and necessarily condensed form reliable information upon questions of prognosis and results of treatment? We think the answer must be that the value will depend upon the purpose of the inquirer: the volume is not of much help to the specialist, the subject-matter being too condensed for his purpose and the sources of information somewhat limited, and also in certain instances out of date. On the other hand, the practitioner will find that the volume is a compilation of reliable and interesting information such as would be inaccessible to him except by long and detailed search through the literature. In this last respect, therefore, we consider that the volume is a useful contribution to medical literature.

[1] *Index of Prognosis and End-results of Treatment.* By various writers. Edited by A. Rendle Short, M.D., B.S., B.Sc.Lond., F.R.C.S.Eng. Third edition. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. (Roy. 8vo, pp. xi + 594. 42s. net.)

LIGHT AND COLOUR.

FEW advances in modern science are more absorbing or more far-reaching in their possibilities than those connected with the visible and invisible spectrum. The full significance of this is well exposed in *Light and Colour*[2] by Dr. R. A. HOUSTON, lecturer on physical optics in the University of Glasgow. The subject is exciting much popular interest at present, and the book has been written primarily for amateurs and in answer to questions addressed to the author by photographers, medical students, and members of the public generally. At the same time, as is stated in the preface, its contents are of interest and value to the serious student; and there is much in it that has not hitherto appeared in other works on the subject.

The opening chapter contains an account of the spectrum and its discovery by Isaac Newton in 1666. From this the subject is developed in various directions historically. About five hundred years before the Christian era Pythagoras discovered the octave on vibrating strings, which fixed the musical scale. Some two thousand years later Newton applied the musical scale to the spectrum, influenced, as Dr. Houston surmises, by Kepler's work on the *Harmonices Mundi*, or the Harmonies of the Universe, and the famous doctrine of the music of the spheres. The mediaeval tradition of harmonical progression survived for a long time in the textbooks of algebra, and the opening chapter has much to say on its influence on astronomers from the earliest time and the complicated reasonings to which the doctrine of the music of the spheres gave rise.

All this comes as an introduction to the theory of light as evolved after the discovery of the spectrum. Newton believed that the colours of the spectrum consisted of particles of different size, the red rays being the largest and violet rays the smallest. This theory was challenged by Thomas Young, who held that they consisted of waves of different lengths, and these two explanations of the spectrum are discussed by the author in a chapter on the nature of light, in which he leads the reader on to Einstein and relativity and to the quantum. Dr. Houston's attitude towards these modern developments, as affecting the science of physical optics, is non-committal. He remarks that—

> "it is a depressing experience to study the utterances of philosophers on Einstein or to read a popular discussion on the subject in one of the literary journals. The participants have as much hope of getting near the gist of the matter as the proverbial blind man in a dark cellar looking for a needle that is not there."

With regard to the quantum, which keeps cropping up in different fields of investigation, always in association with light or radiation of appropriate wave-length, he notes that the precise connexion between them is not known, and that opinions vary from the radical view that there is something seriously wrong with the present theory of light to the conservative view that the wave theory is all right and that the quantum is the amount of energy liberated or absorbed in some internal change in the atom. Newton's corpuscular theory thus appears again as a working hypothesis to those who hold that the process of radiation as a whole depends in part on the movement of electrons. A stream of electrons, for example, becomes a corpuscular radiation in the *x*-ray bulb.

There is an illuminating chapter on the use of invisible rays in war and secret signalling, on *x* rays and the rays emitted by radium, and on wireless telegraphy, which depends on electro-magnetic waves of the same nature as light waves, differing only in being longer and varying in size from 0.16 cm. to hundreds of kilometres in length. The original spectrum of Newton has thus in modern science grown enormously from the wireless waves beyond the infra-red to the radium rays beyond the ultra-violet. The visible

[2] *Light and Colour.* By R. A. Houston, M.A., Ph.D., D.Sc. London: Longmans, Green and Co. 1923. (Demy 8vo, pp. 179; 71 figures, 8 plates and frontispiece. 7s. 6d. net.)

spectrum in fact forms only a small portion of the complete spectrum. In this chapter on invisible rays the author also describes the optical telephone, speaking films, and the optophone for enabling the blind to read by means of the sounds emitted in passing five little spots of light arranged in a row, known as the scala, along a line of printed type.

The constitution of the atom and the stars, the infinitely small and the infinitely great in the physics of the universe, and the way in which the most important recent work on light and the spectrum is applied to our knowledge of these, form the subject of another chapter. It is followed by a chapter on the primary colours and their combinations, which together with a chapter on colour photography and stereoscopy is of special interest in connexion with painting, photography, and colour printing. A chapter on colour blindness describes in clear language the scientific and practical aspects of this important subject.

In another chapter the author indulges in many interesting speculations on the light of the future and the relative commercial values of the glow lamp, the incandescent mantle, the arc lamp, and the half-watt lamp. The light of the future, he says, is a field in which "we require research and more research and more research still." For, taking it at its lowest, he informs us that "when a householder wishes 2s. worth of electric light he has to take £2 18s. worth of useless dark heat along with it." Consequently "the discovery of a perfect light, the light that is all light and is unaccompanied by useless dark heat, is one of the most pressing problems of applied science." In Nature the firefly emits such a light—that is to say, the energy radiated all lies in the middle of the visible spectrum; and from this fact is deduced a hope that the perfect light may eventually be discovered.

Other chapters of the book deal with photochemistry and allied effects, and with phototherapy. In the first of these a good account is given of the bactericidal action of light and its restriction to the ultra-violet radiations, and of the photosynthetic action of chlorophyll. Phototherapy, radiotherapy, and heliotherapy are discussed clearly and scientifically. The value of sunshine in the treatment of rickets is recognized and explained tentatively as probably due to inflammatory or subinflammatory processes in the skin, which produce the fat-soluble vitamin A by a photochemical reaction set up by sunlight and ultra-violet light. The author, however, is unable to explain the value of sunshine in the treatment of tuberculous affections as carried out at Leysin in the Swiss Alps; for he remarks that, if it is a case of selective action on the bacilli, the group of radiations which penetrate the skin are not bactericidal, while on the other hand the bactericidal group are neither present in sunshine nor do they penetrate the skin. Incidentally it may be mentioned that Dr. Rollier and his clinical assistants, although they recognize the difficulty raised by these facts, hold that sunshine has a bactericidal action, when prolonged over long periods and at maximum intensities. In any case they regard sunshine as a powerful adjuvant to the natural defences of the human body, and capable of evoking changes within it, which increase its bactericidal properties. They have had remarkable results, especially in cases of tuberculous disease of the knee and foot and other structures near the surface of the skin or exposed by open sores. Patients suffering only from pulmonary tuberculosis are not admitted to Dr. Rollier's clinics. The Leysin theories are explained in a physical and biological study of light, by Dr. Rosselet, which appeared in the *Revue Suisse de Médecine* in February and March last year.

Dr. Houston's final chapter on the psychology of colour will be read with interest as it suggests to the brain worker and others possibilities of effects of colour environment on the work they produce, although the theory that different colours excite different emotions or mental states led nowhere when put to the test of experiment. The highly scientific character of the volume is relieved by much philosophical and speculative thought. The amateur will find little difficulty in grasping from its perusal the trend of modern science in the domain of physical optics; but, unless he is already equipped with some knowledge of applied mathematics and physical chemistry, he may not find it easy to follow the details of some of the chapters. Taken as a whole, however, it is an intensely stimulating book and well up to date, admirably and clearly illustrated and printed. The medical practitioner will find in it much food for thought. In these days of radiotherapy he cannot afford to neglect the study of light and colour in their scientific aspects, and for this purpose Dr. Houston's volume will prove a valuable addition to his library table.

ENDOCRINE THERAPEUTICS.

THE textbook of diseases of the endocrine glands[3] Dr. HERMANN ZONDEK, professor in the University of Berlin, has written for students and practitioners is an excellent summary of our present knowledge of this difficult subject. The outlook is mainly clinical and the book gives a general account of the causation, nature, and treatment of the chief diseases which it is recognized are caused by deficiency or overaction of the endocrine organs. The book contains 173 illustrations, most of which are reproductions of photographs of typical cases of the diseases described.

After a general discussion of the laws governing endocrine secretion, the bulk of the book is devoted to the description of the individual diseases, the chief being exophthalmic goitre, myxoedema and cretinism, tetany, obesity, diabetes insipidus, acromegaly, gigantism, dwarfism, osteomalacia, Addison's disease, status lymphaticus, and disorders of the genital functions. The omission of any mention of the pancreas in relation to diabetes mellitus seems inexplicable.

The author confines himself to the clinical aspect of the problems dealt with, and avoids all discussion of purely physiological questions; this restraint has made it possible to keep the size of the book within reasonable dimensions; the bibliography is restricted to a useful list of thirteen pages of selected and recent references. In a discussion of the relation between endocrine secretion and the autonomic nervous system an account is given of the theories of Eppinger and Hess regarding vagotonia and sympathicotonia, and the tests for showing the existence of each of these conditions are described. The author does not, however, accept these theories unconditionally, but points out that the relation between the endocrine and autonomic nervous systems is extremely complex. He does not look on the hormonal system as the uncontrolled dictator of the bodily functions, but considers that its functions are probably equal to those of the autonomic nervous system and that either system can profoundly modify the activities of the other. In particular he points out that in actual practice it is very difficult to find cases that can be regarded as typically vagotonic or sympatheticotonic.

In the portion devoted to the discussion of the different types of endocrine diseases a full description of the etiology, symptomatology, prognosis, and therapy of each is given. The symptomatology is dealt with very fully and the excellent illustrations are an outstanding feature of the book. The portions dealing with endocrine therapy are of very particular interest. The bulk of the literature on this subject is, of course, very uncritical and, to say the least, highly optimistic. In writing a summary of such literature the temptation is great to yield to the pervading facile optimism and to describe series after series of remarkable cures. Fortunately Professor Zondek has done a considerable amount of original work on endocrine therapy, and has tested the action of numerous endocrine products by delicate metabolism experiments. Consequently he treats the whole subject with a healthy scepticism and distinguishes clearly between subjective and objective evidence. His general attitude is thus defined (p. 38): "Unfortunately the therapeutic results obtained in diseases which do not depend on thyroid insufficiency cannot in any way be compared with those obtained in hypothyroidism. This must be strongly emphasized." He goes on to point out the innumerable difficulties attending the extraction from a gland of its specific hormone, and suggests that in many cases the trade preparations do not really contain the specific gland products.

The account of the history of the treatment of

[3] *Die Krankheiten der endokrinen Drüsen.* A Manual for Students and Practitioners. By Dr. Hermann Zondek, Professor in the University of Berlin. Berlin: Julius Springer. 1923. (Sup. roy. 8vo, pp. vii + 3… 173 figures. Unbound, 3.85 dollars; bound, 4.20 dollars.)

exophthalmic goitre is excellent evidence of the uncertainty of some of the positive results claimed for endocrine products. Preparations of the ovaries, the pancreas, the suprarenals, the posterior lobe of the pituitary, and of the thymus have all been recommended, but all these measures possess to-day only an historic interest since in no case has it been shown that they can produce any objective measurable influence upon the disease. The author favours the use of potassium iodide in doses of a few milligrams a day, and produces evidence that this treatment can reduce the basal metabolism in exophthalmic goitre by 30 per cent.

In the discussion of the treatment of myxoedema and obesity Professor Zondek gives an account of some interesting experiments he has performed to estimate the relative value of thyroid preparations. He made metabolic measurements in a series of cases of hypothyroidism before and after treatment with a series of proprietary preparations of thyroid. He concluded that thyreoglandol and thyreoideaopton were devoid of any action on metabolism, and that the activity of the other preparations showed considerable variations. This plan of obtaining a quantitative estimate of the activity of thyroid preparations appears to have great possibilities, for obviously a method of standardization that is based on human metabolism measurements is in many ways much more satisfactory than the usual method of measuring the action of preparations on the metamorphosis of tadpoles. He describes similar tests made with ovarian extracts in cases of deficient ovarian secretion. In castrated women ovarian grafting produced a well marked increase in oxygen consumption, but he found that none of the preparations of ovarian extracts produced any demonstrable effect on metabolism in similar cases.

An interesting account is given of the results of rejuvenation by Steinach's operation (ligature of the vas deferens), and in this case also the author has applied the definite scientific test of metabolism measurements. He finds that the Steinach operation produces a definite rise in the rate of metabolism, but that this passes off after a month or so, and he concludes that the beneficial effects are in the nature of a transitory stimulus. Professor Zondek's general conclusions (p. 276) regarding the therapy of sex gland deficiency are that "the treatment of conditions of sex gland insufficiency is on the whole a thankless task. The hope that treatment with specific substitution products would produce in this case results at all comparable with those achieved in hypothyroidism has, broadly speaking, been disappointed." He holds that the effects of suggestion constitute a very serious source of error in considering the effects of endocrine therapy in sexual deficiency, and he quotes cases where temporary positive results have followed the injection of sterile saline.

All interested in endocrine disease should study Professor Zondek's work, for it contains a full and well illustrated description of the chief types of endocrine disease, and in addition gives a reasoned and critical account of the results obtained with endocrine therapy in these diseases. Unfortunately, this last feature is sufficiently rare to be remarkable amongst the clinical literature dealing with endocrine diseases. If the author's method of treating this subject were only more general the subject of organotherapy would show more resemblance to a progressive branch of therapeutics and less resemblance to sympathetic magic.

CALMETTE ON TUBERCULOSIS.

THE success, both in France and elsewhere, of CALMETTE'S great book on tubercle was so immediate that the first edition became exhausted within a few weeks of publication, and a second edition followed within a commendably short time.[4] The principal addition consists in an important chapter dealing with various laboratory researches into the drug treatment of tuberculosis. This chapter, entitled "Attempts at Chemotherapy in Tuberculosis," is a comprehensive survey of recent efforts to discover some bactericide which could destroy the bacillus *in vivo* as arsenical compounds do spirilla and trypanosomes.

The majority of these attempts have proved failures; nevertheless Calmette is of opinion that certain suggestions are valuable and worth further study. Although he concludes with the observation that "despite the great number of attempts made to discover among chemical agents a substance capable of arresting the development of experimental tuberculosis in the guinea-pig and the rabbit, these efforts have been in vain"; yet this, he says, is not a reason for discouragement. Some of the drugs that have been tried (notably those with iodized compounds) even if they do not appear full of promise give definitely favourable results. The practice of injecting at random certain chemicals into patients with the vague hope of discovering a specific activity should be condemned. "Experimentation alone, methodically conducted upon animals sensitive to tuberculosis, will enable us to explore with profit the immense perspectives that chemotherapy offers."

Our quotations are from the authorized English translation[5] by SOPER and SMITH, who, realizing the need of bringing this work before the English-reading public, have earned our gratitude by the way they have accomplished their task. Two apparently minor points will illustrate the care which has been devoted to this translation; all the references have been verified and set out in a manner that is a distinct improvement on the French editions, whilst the index enables the reader to turn to particular subjects in the text far more readily than in the original. The colour-plates fall scarcely at all below those of Masson, the publishers of the French edition.

Calmette's style is singularly clear and direct, and his translators have taken his sentences and turned them almost word for word into English. He is one of the few French authors with whom this is possible without producing a confusion of idioms, and, though the result is not elegant, the meaning is seldom in doubt. On page 354, describing the conditions under which the sale of tuberculous pork is permitted, the translators have added after the phrase "Assistance Publique" "(Department of Charities of Paris)." In the original, however, there is no mention of Paris, and the paragraph appears to refer to the abattoirs of Buenos Aires.

Lapse of time has not diminished our appreciation of this remarkable book, and we congratulate the publishers and translators of the English version on having rendered it accessible to a large and eagerly expectant public.

MONTAIGNE AND MEDICINE.

THE medical profession has always numbered many admirers of that most ingenious and ingenuous philosopher, Michel Seigneur de Montaigne, whose delightful *Essais* are best known to English readers through the translations of Florio and Charles Cotton. Dr. J. S. TAYLOR has reprinted, in an attractive little volume entitled *Montaigne and Medicine*,[6] a serial article which appeared last year in three successive numbers of the *Annals of Medical History*. He presents us with a full account of the medical aspects of Montaigne's life and works, illustrated by copious extracts from the essays and the travel diary.

Montaigne, as every reader of Osler's textbook of medicine knows, was a sufferer from gout and renal colic, of which he has left a classical description, and it was in order to seek relief from his symptoms, as much as to enlarge his mind, that he made an extensive tour through Europe, visiting the spas of France, Germany, Italy, and Switzerland. Though keenly alive to the foibles of the doctors of his day, and the absurdities of the contemporary pharmacopoeia, Montaigne readily submitted himself to the ministrations of physicians whom he regarded as learned and eminent, and in Dr. Taylor's opinion he must have

[4] *L'Infection Bacillaire et la Tuberculose chez l'homme et chez les Animaux.* By A. Calmette. Second edition. Paris: Masson et Cie. Roy. 8vo, pp. vi + 644; 31 figures, 25 plates. Fr. 50 net.)

[5] *Tubercle Bacillus Infection and Tuberculosis in Man and Animals.* By A. Calmette. Authorized English translation by Willard B. Soper, M.D., and George H. Smith, Ph.D. Baltimore, U.S.A.: Williams and Wilkins Co. 1923. (Roy. 8vo, pp. xxii + 689; 31 figures, 25 plates. Price: United States, Canada, Mexico, and Cuba, 8 dollars; other countries, 8.50 dollars.)

[6] *Montaigne and Medicine. Being the Essayist's Comments on Contemporary Physic and Physicians; his thoughts on many natural matters relating to life and death; an account of his bodily ailments and peculiarities, and of his travels in search of health.* By James Spottiswoode Taylor, M.D., F.A.C.S. London: Humphrey Milford, Oxford University Press. (Post 8vo, pp. xix + 244; 32 plates. 14s. net.)

made an ideal patient. Moreover, he was so keen an observer and recorder of all natural phenomena, including those of disease, that his biographer thinks he would also have been eminently fitted to practise medicine. Remembering his motto "Que sais-je?" we may perhaps agree. Apart from the account of his own illness, several passages in his works show Montaigne's intelligent interest in medicine, such as his description of the spas at Plombières, Lucca, and Viterbo, the miraculous cures at Loreto, and his allusions to contemporary physicians such as Sylvius, Paracelsus, and Felix Platter.

The volume is pleasantly illustrated with portraits of Montaigne and facsimiles of his handwriting; also with photographs of places, mainly in Italy, visited by him on his travels, and views of his family castle in Périgord, to which he retired at the close of the foreign tour, in order to devote himself to the study of philosophy.

MEDICINAL AND DIETETIC PREPARATIONS.

Sulphuretted Hydrogen Soloids.

CHEMICAL reagents in the form of prepared charges have been found exceedingly useful, both for work at home as well as for use in travelling. They were designed originally for particular applications, but from time to time ingenuity has been exercised to produce them in a form more adaptable to general use. In this direction Messrs. Burroughs, Wellcome and Co. have played a leading part. Their series of "Soloid" reagents includes one for the generation of sulphuretted hydrogen. The soloids for this reagent consisted formerly of a pair, containing respectively zinc sulphide and oxalic acid. They have effected an improvement on this combination, and the sulphuretted hydrogen reagent is now contained in a single soloid of aluminium sulphide. This substance generates sulphuretted hydrogen under the action of water alone, the by-product being aluminium hydroxide, the presence of which is seldom disadvantageous for the purpose of the test. We have examined a sample of the soloids and found them to react well. Each soloid will saturate ten cubic centimetres of water with sulphuretted hydrogen.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A DISTRIBUTION meeting of the President and General Council of King Edward's Hospital Fund for London, for the purpose of awarding grants to the hospitals and convalescent homes for the present year, was held on December 18th, with the Prince of Wales in the chair.

Lord REVELSTOKE (honorary treasurer), in reporting the amount received for general purposes, said that this time last year he had expressed the hope that the income to be derived from the munificent legacies of Lord Mount Stephen and Sir Thomas Sutherland would form the nucleus of a permanent increase in the distribution. The Fund had already received a large part of this increased income. The total income from all investments reached £145,000 this year, as against £114,000 in 1922. On the other hand, ordinary legacies had decreased, although for the past twelve months they still reached the substantial figure of £47,000. The net result was that the Fund was able to distribute £235,000. Taking all the sources of income into consideration, there was every hope that this large sum would be provided very nearly, if not quite, out of the current income of the year.

Sir WILLIAM COLLINS, in making the annual statement on behalf of the League of Mercy, said that so far as they could tell from the subscriptions at present received, £14,000 would be handed over to the King's Fund before the end of the year. This would make a total sum of £353,000 handed over to the Fund since the foundation of the League. Adding the grants made to hospitals outside London, the total came to £407,682.

Mr. LEONARD COHEN presented the report of the Hospital Economy Committee on recovery branches of London hospitals, advocating the wider adoption of these as a valuable form of hospital extension.

Grants to Hospitals and Convalescent Homes.

Sir COOPER PERRY presented the report of the Distribution Committee. The sum allocated this year was £233,000, and the need of maintenance grants had been the first consideration. Only in exceptional cases were they prepared to assist in new schemes of improvement or extension, and the amount so expended this year was £30,100. The total grants to maintenance had amounted to £202,900.

Lord SOMERLEYTON (honorary secretary) presented the schedule containing the detailed list of awards to hospitals (including recovery and convalescent branches).

The larger sums awarded include £14,000 to the London Hospital, £11,500 to Guy's Hospital, £10,000 to St. Bartholomew's Hospital, £9,500 to St. Thomas's Hospital, £9,000 to the Royal Northern Hospital, £8,000 to King's College Hospital, £7,500 each to the Middlesex Hospital and Westminster Hospital, £7,000 to University College Hospital, £6,900 to St. George's Hospital, £6,050 to the Prince of Wales's General Hospital, £6,000 each to St. Mary's Hospital and the Royal Free Hospital, £5,700 to Queen Mary's Hospital for the East End, £5,000 each to the Hospital for Sick Children and the West London Hospital, £4,750 to the Queen's Hospital for Children, £4,500 each to Charing Cross Hospital and the Royal National Orthopaedic Hospital, £3,700 to the National Hospital for the Paralysed and Epileptic, £3,600 to the Miller Hospital, £3,550 each to the City of London Hospital, Victoria Park, and the Dreadnought Hospital, and £3,500 to the Metropolitan Hospital.

Sir COOPER PERRY then presented the report of the Distribution Committee with reference to convalescent homes not attached to particular hospitals. This showed that £2,000 had been distributed during the year. Major WERNHER (honorary secretary) presented the schedule of awards.

Growth of the King's Fund.

The PRINCE OF WALES said that the King's Fund was to-day taking another stride forward, the distribution being increased by £15,000. The increase in income, which had more than balanced a fall in legacies, was chiefly due to the dividends from the bequests of Lord Mount Stephen and Sir Thomas Sutherland, together with an anonymous donation of £6,500. Gifts to the King's Fund benefited nearly 150 institutions in proportion to their respective claims, as judged by the Distribution Committee, which had acquired a great amount of knowledge and experience. The novel feature in the report of the Distribution Committee was the new method of dealing with the recovery and convalescent branches of hospitals by amalgamating the grants to the branches with the hospital grants. The question of recovery branches had come up for decision this year because of the inquiry by the Hospital Economy Committee, whose report was before the Council. The Committee had made a thorough inquiry and considered that recovery branches were good, but that the hospitals and also the King's Fund must first count the cost, as in the case of any other form of hospital extension. There had been an interesting development of the work of the Revenue Committee. One subcommittee, under the chairmanship of Lord Burnham, had been appointed to assist, partly by general propaganda in aid of the work of the King's Fund and the hospitals, partly by enlisting the help of members of the professions of science, art, literature, law, etc.; and partly by continuing from time to time some of the activities of the Educational Auxiliary which had done such good work for the Combined Appeal. Another subcommittee would assist both the King's Fund and the hospitals to increase their revenue in any other ways not already covered by some existing agency. Lord Burnham's Committee was at present organizing another scientific novelties exhibition at King's College, and another set of lectures and counter-lectures at the London School of Economics in the spring. On the side of definite propaganda it had already issued a leaflet about the present financial position of the hospitals of London, and it would arrange for lectures in schools and elsewhere so as to inculcate in the mind of the public generally a greater sense of responsibility for the regular and systematic support of the hospitals.

Lord ULLSWATER, in moving a hearty vote of thanks to the Prince of Wales for presiding, alluded to the great care which His Royal Highness took to inform himself upon all the business of the Fund. The motion was carried with acclamation.

British Medical Journal.

SATURDAY, DECEMBER 29TH, 1923.

THE DEFINITION OF DRUNKENNESS.

The problem of how best to deal with a drunken man has been with us ever since Noah's unfortunate lapse, but the development of motor transport has raised special difficulties which directly affect medical men. Everyone agrees that the drunken motor driver constitutes an unnecessary danger which calls for drastic suppression, and magistrates are tending to deal with such cases more and more severely. But the severer the punishment becomes for being drunk while in charge of a car, the more necessary is it to have a clear definition of what constitutes drunkenness, and the civil law expects medical men to be ready to give an opinion in such cases. Unfortunately there can never be any clear scientific definition of drunkenness. It is easy to say whether or not a man is under the influence of alcohol, and it is even possible by means of skilful tests for an experienced observer to define fairly clearly several stages of alcoholic intoxication; but the crucial question as to whether a man's brain is so clouded that he is unfit to be in charge of a car is one which must be decided by common sense, and scientific tests can give very little help.

The popular idea seems to be that a person taking alcohol retains his normal senses up to a certain point and then suddenly becomes drunk. This is, of course, erroneous, for even small doses of alcohol can be shown by accurate psychological tests to produce a distinct depression of the finer powers of judgement, although the subject in this stage appears to a casual observer to be completely normal. The popular opinion is, however, so far justified that sudden changes in behaviour are frequently seen in intoxicated persons, due to the fact that the inhibitory centres, which have been holding the disordered brain to a more or less normal course of action, lose control, and when this happens the effects of the gradual process of intoxication suddenly become apparent.

Alcohol intoxication, it is true, produces a descending paralysis of the brain, depressing first the higher and later the lower centres, but the grading of the different stages of intoxication is a matter of extreme difficulty, because the different functions of the brain are attacked in different order in different individuals, and even in the same individual the apparent effects of drunkenness vary greatly according to the surroundings. A man who will in convivial surroundings become hilariously drunk may, with the same dose of alcohol in quiet surroundings, merely go to sleep. Moreover, the rate at which skilled movements are affected by alcohol depends very largely upon the degree of practice the subject has in these movements, and also upon how accustomed he is to perform them when under the influence of alcohol. For example, a skilled musician who is also a chronic drunkard may be able to play with considerable skill when he is too drunk to stand. Consequently it is very difficult to devise a fair test for drunkenness based on the performance of skilled movements, because the test depends so largely on the degree of practice the individual has in the subject of the test. For example, a writing test is much more severe for a manual worker than for a clerk.

The problem has reached an acute stage in Denmark, for under the Danish law a man may be permanently deprived of a licence to drive on a single conviction of being drunk while in charge of a car. Hence a uniform standard for tests for drunkenness has become an urgent necessity. At the request of the Chief of the Police the Danish Medico-Legal Council, in consultation with a pharmacologist and an alienist, worked out a scheme for clinical examination to be followed by all medical practitioners examining cases of drunkenness. This scheme, of which a brief account was given in the BRITISH MEDICAL JOURNAL of September 15th, 1923 (p. 487), is on the usual lines. It requires the practitioner to observe the general condition of the subject, the presence or absence of smell of alcohol, and the condition of speech, gait, handwriting, and pulse; it prescribes also a simple memory test. A medical expert was appointed whose services were immediately available in Copenhagen by day or by night to examine motor drivers accused of drunkenness. This expert has made a report on the results of the examination of fifty cases. Perhaps the most significant point is that he spent on an average forty-five minutes in the examination of each case, and considered that such a length of examination is essential to arrive at a just conclusion in doubtful cases. He found that the pulse rate gave little help, and that pronunciation and handwriting tests were of little value on account of the low standard of education of most of the persons examined. Memory tests were, however, of great value, and one of the most useful was to demand from the subject a short coherent account of some recent event.

The expert's notes are of interest, since they suggest that the time required for examination for drunkenness is considerably longer than is usually thought necessary, and also that the tests in general use in this country might be considerably improved. While an expert regularly engaged in examining cases of suspected drunkenness may become able to fix a fairly uniform standard of what constitutes drunkenness, the problem still remains as to how he can transmit this knowledge to others. In principle there is an analogy between the position of the medical witness in these cases and that in which he is placed in the High Court when the issue is whether the accused is to be held responsible for the crime with which he is charged. The High Court has all the facts before it. In charges of drunkenness against a motor driver the police know all the circumstances and may be aware that in a particular instance a trained driver has driven in a grossly incompetent way. The police call in the doctor to confirm their impressions and conclusions, and while in extreme cases he may have little difficulty, there are, as we have shown, many intermediate stages where a definite decision may be extremely difficult. It seems doubtful whether a fixed schedule for clinical examination will be of any great practical value. The appointment of an expert to examine all cases in an area certainly seems a step towards obtaining uniformity in administration of the law, and if such experts occasionally worked in couples it would be possible to ensure that a fairly uniform standard was maintained.

Any steps in this direction would probably be welcomed by the medical profession, for the giving of evidence in cases of drunkenness is a difficult and unsatisfactory task for medical men who have not any special experience in the examination of such cases.

THE EFFECTS OF *X* RAYS ON TISSUES.

THAT some cancers, especially epitheliomata, have favourably responded to *x*-ray or radium treatment, often diminishing in size and sometimes disappearing, has given rise to the belief that malignant cells are more susceptible than normal tissue to radiation, but this has never been satisfactorily demonstrated, and, indeed, the weight of experimental and histological evidence may be said to be against it. It is true that transplantable tumour material from rats and mice can be killed by exposure to *x* rays, but the lethal dose necessary is seldom within the limits of a therapeutic dose for the human subject. It is essential to understand wherein lies the beneficial action of the rays if radiotherapy is to be put on a rational basis.

Murphy, Maisin, and Sturm[1] have recently published the results of some very interesting experiments which may shed light on the subject. Having previously found that the application of an erythema dose to the skin of an animal rendered the area resistant to subsequent inoculation with a transplantable tumour, they sought for a means of reproducing more closely the conditions of the disease in man, and to that end they collected 49 mice with spontaneous tumours, which were removed and portions regrafted in the same animal at another site which had been *x*-rayed. This preliminary treatment had the effect of preventing the take or retarding the growth of these autografts. The inference was that the environment of the introduced cells had been altered. They now removed spontaneous tumours from a series of 50 mice; each tumour was divided into two, one portion being *x*-rayed and a graft from it made in the right flank of the animal which provided the tumour; a portion of the other half was inoculated into the left flank without any treatment. Both grew equally well, the direct radiation of the cells having no repressive, far less any lethal, effect. Ten days after the inoculations those tumours resulting from the untreated material were given *in situ* exactly the same dose of *x* rays as had previously been given to the cells on the other side of the body. The result was that 76 per cent. of them totally disappeared, and the growth of the rest was greatly retarded. This shows fairly clearly that a therapeutic dose of *x* rays has no appreciable direct effect on the cancer cells, though the same dose given to a growing cancer together with the surrounding normal tissue produces healing in the majority of cases. There is the possibility, however, that tumours *x*-rayed *in situ* are more sensitive than those exposed *in vitro*. This was ruled out by the following experiment. Spontaneous tumours were removed and fragments replanted into each flank of the animals that furnished them. When the resultant tumours were growing satisfactorily, one of the pairs was exposed *in situ* to the action of *x* rays, and then removed and reinoculated into an unrayed area of the same animal. As many as 47 mice with spontaneous tumours were thus dealt with, and the *x*-rayed nodules grew well in the new situation.

It seems evident from these experiments that as far as mouse cancer is concerned the beneficial result from *x*-ray therapy is due to some reaction in the normal tissues induced by the rays, and not to any direct effect on the cancer cells. This experimentally confirms the views arrived at by Ewing and others from a study of human material. Probably the good effects claimed for high-frequency *x* rays depend on the same factors, since the maximum amount of *x* rays which are supposed to be delivered to deep tumours is w below the experimentally established lethal dose cancer cells. Since both the relatively long *x*-r waves and the short waves of the gamma ray in probability influence cancer through the reaction duced in the normal tissue, it is not improbable the high-frequency *x* rays act in the same way.

[1] *Journ. Exp. Med.*, vol. 38, No. 5, 1923.

PUBLIC HEALTH IN PALESTINE.

EVIDENCE of extensive improvements in health conditi which are being brought about in Palestine under Briti control is set forth in the annual report for 1922 of t Department of Health of the Government of Palesti The old Turkish custom of farming out the little sanita work that was considered necessary has given place organized Government supervision and direct control all the larger centres of population. Local councils w modified municipal powers have been created, and organized public health service under medical officers health; they have been well received, even though sanita rates have been imposed simultaneously. Increased supp of water are being provided in various places—as, f example, in Jerusalem, where the additional source Solomon's Pools is now being utilized. Drainage syste in various towns are being planned and carried out modern lines, and enteric fever and dysentery ha diminished considerably. The value of notification of fectious diseases, followed by visits from the medi officer of health and inspectors, has been enhanced by mobile epidemic equipment, which includes provision the erection, where necessary, of a temporary field hospi Wild and vagrant animals are destroyed, and antira vaccine is obtainable in several centres. An outbreak bubonic plague in Jaffa led to active measures for destruction there and elsewhere. An energetic vacc tion and revaccination campaign dealt with 200,000 pe and pilgrims to Mecca were inoculated also against chol Market places—those hotbeds of disease—have been o hauled, and in many cases rebuilt. Medical inspections being carried on in over five hundred schools, and sch clinics have been organized in several places. Ophthal clinics exist in four towns, and there is a travel ophthalmic hospital, which last year did more work than total record of the previous three years. Preventive tr ment is also carried on in all the Government scho Something is being done in the way of town plann and the new colonies are being formed on sites selec with regard to drainage and water supply. There serious overcrowding in the larger towns, but this will is hoped, be relieved by the increasing opportunities rural life. Malaria is still the most important disease Palestine, and a very active campaign against it is progress with the aid of the Malarial Survey Section by the Rockefeller Association, and now working un Government direction; the Malarial Research Union field personnel, financed by the Jewish Joint Distribut Committee of America, is co-operating actively, and detailed survey of the whole country from this point view is being made. There are eleven Governm hospitals, and many village clinics and dispensar Government laboratories exist in four towns, Jer laboratories in five, and there is a Pasteur Institute Jerusalem. First-aid instruction is being given accor to the regulations of the St. John Ambulance Brigade, nurses are being trained. The number of practising doc has doubled in the past two years, but, as most of t reside in the larger towns, there is not sufficient work them all, while many parts of the country districts have to depend for medical treatment on the peri

sits of the medical officer of health. In spite of the arious difficulties, however, there is a gratifying improvement in the general health throughout the area of British dministration.

THE VALUE OF MENTAL AND SCHOLASTIC TESTS.

the course of some investigations among physically fective children it was found that not only in scholastic ttainments were they much below the average, but also hat, contrary to accepted views, their so-called "mental" ttainments were equally low. Terman says that the lack schooling does not prevent a subject from earning an verage or superior score by the tests employed, but yril Burt inclined to the view that "barren is the growth eprived of opportunity." In order to ascertain which of hese pronouncements was the nearer the truth, Mr. Hugh ordon, one of His Majesty's Inspectors of Schools, made n investigation during the course of his official work, and is report has been published by the Board of Education.[1] deals with physically defective, canal boat and gipsy hildren, and backward children in ordinary elementary chools, but the scope of the paper is better indicated by the ubtitle, "An inquiry into the effects of schooling on the arious tests." The tests employed were those of Terman, odified in small points to meet local necessities. Among hildren in physically defective schools there was found low average "mental" and "educational" ratio. The uestion was whether this was due to social environment, eredity, lack of schooling, or to the physical defect. ocial condition was ruled out, since the employment of he parents did not differ materially from that of parents children in the ordinary schools, but the physically fective children made only an average percentage attendnce of 48 per cent., as against 88 per cent. for the ordinary hildren. Heart disease, infantile paralysis, and tuberlous troubles were by far the most prevalent physical ffects, and differences of response were found according the defect. Heart cases gave the best response, but eir attendance was best; infantile paralysis gave the orst; cases of hemiplegia gave bad responses even though eir attendance percentage was high. The conclusions em justified that the physical defect in the majority of ses had a marked influence in reducing the amount of hool attendance, that through this reduction of schooling also had a corresponding effect on both the "educaonal" and "mental" ratios, and that to a certain gree the intelligence tests are tests of school attainents. The second set of children investigated were canal at children. They are clean and well fed, life on board e boats is almost patriarchal, morality is good, discipline ficient, but the schooling is minimal. It is calculated that canal boat child gets something like 4 to 5 per cent. ttendances a year against 88 per cent. attendances of the dinary child. The "intelligence" test response was low, d there was a decided decrease of "intelligence" with increase of age. The conclusion arrived at was that thout education or schooling children are very much ndicapped when tested by the "intelligence" tests, and arly to the same extent as when tested by purely holastic tests. Gipsy children live a nomadic life, but ey have plenty of social intercourse. Their health and anliness is equal to that of the agricultural population. hool attendance is irregular (35 per cent.). The mental sts used did not measure native ability apart from hooling except in the case of very young children. Mr. rdon suggests that there is need for a further investigan to discover by means of specially devised environmental tests whether in such children as gipsies' and canal boat children there has been any further mental development in other directions; he is inclined to think that there are such developments amongst gipsies but not in canal boat children. When backwardness in children is due to natural dullness, schooling does not bring any all-round development; although they can accomplish certain scholastic tests in matters they have been taught in school, they are unable to do equally well in those matters upon which they have not been instructed and which require some thought. In other words, the more these children attend school the greater their scholastic ability but the less their "intelligence," at least with children naturally dull and attending such classes as those investigated. Whether totally different methods of instruction would produce similar results is a most interesting problem. The general conclusion of the investigation—which is related in much detail, so that the methods of working can be tested by other observers—is put thus: "It is quite evident that, although the mental tests used do undoubtedly test some kind of ability or abilities, such abilities are not developed without schooling or its equivalent, and as a consequence the tests do not evaluate them apart from schooling, except perhaps in the case of children under 6 or 7 years of age." This is a very direct challenge to the value of the tests, and one that will doubtless stimulate much heart-searching among school psychologists.

[1] Board of Education, Educational Pamphlets, No. 44. Mental and holastic tests among retarded children, physically defective, canal boat gipsy children, and backward children in ordinary elementary schools. inquiry into the effects of schooling on the various tests. London: M. Stationery Office. 1923. (Pp. 92. Price 1s. 3d. net.)

MODE OF ACTION OF DISINFECTANTS.

THE fifth report of the British Association Committee on Colloid Chemistry,[1] issued recently by the Department of Scientific and Industrial Research, deals for the most part with industrial problems, but contains one article on colloid phenomena in bacteriology which is of considerable medical interest. It is by Dr. E. K. Rideal, who makes an ingenious attempt to explain the specific disinfectant action of drugs in terms of modern physical chemistry. Ehrlich's explanation of the specific action of drugs and toxins was a purely chemical conception; drugs were supposed to contain haptophore groups which possessed a specific chemical affinity for special groups in bacteria; the usual metaphor used was that of the lock and the key, and the action of the drug (the key) depended on it fitting the lock (the bacteria). More accurate analysis of the mode of action of disinfectants, aided by the recent advances in physical chemistry, showed that the action of disinfectants depended very largely upon physico-chemical forces, and that adsorption in particular played a very important part. Langmuir and others have shown that organic substances tend to be concentrated in a monomolecular layer on the surface of a watery solution, and that the molecules are orientated in a particular manner. For example, in the case of a fatty acid the COOH or polar group is attracted to the water, whilst the rest of the molecule tends to resist immersion in the water and to pass into any lipoid material. In the case of most organic disinfectants this phenomenon of surface adsorption will explain how a considerable concentration of disinfectant can be produced on the surface of bacteria when they are immersed in a very dilute solution. If the organic disinfectant consists of a complex nucleus with various polar or reacting groups such as NH_2 or OH, then Dr. Rideal argues that this nucleus, which is soluble in lipoid, will tend to carry the disinfectant into the lipoid-containing surface membrane of the bacteria, and the reacting groups will then react with the protoplasm of the bacteria and produce the germicidal action. On this hypothesis the germicidal action depends on two properties of the disinfectant—the possession of a lipoid soluble nucleus and

[1] H.M. Stationery Office. 1923. 8vo, pp. 130. Price 2s. 6d.

the possession of reacting groups. It will be seen that the conception of these two properties bears a considerable resemblance to Ehrlich's theory of haptophore and toxophore groups. Dr. Rideal further attempts to explain the specific action of disinfectants by considering what will happen when a disinfectant drug contains numerous reacting groups. These must be arranged on the molecule in a specific manner, and we must also assume that the acceptor groups in the protoplasm of the bacteria are also arranged in a specific manner which differs for each bacterial species. In some cases the arrangement of the reacting groups will fit the arrangement of the acceptor groups, and multipolar contact will be established and a specific germicidal action will result. When the two sets of groups do not fit the action will be much feebler or non-specific. This conception differs in important details from Ehrlich's theory of haptophore groups, and appears to be a real advance, since it is based on the modern physico-chemical views of solution and adsorption.

"CANCER."

WE have been favoured with a copy of the first number of a new periodical published in the United States of America and called *Cancer*.[1] We are so accustomed to speak of diseases as enemies against which we fight or conduct campaigns that we experience somewhat of a shock when we read the legend under the title, "a practical quarterly journal devoted to the best interests of cancer." It is true that Robert Burns, with his broad humanity, had a kindly word to speak of the devil, but we cannot imagine that any body of mortals should exist to protect cancer against the onslaughts of medicine. We discover gradually, however, that such is not the real intention of the promoters, though, to be candid, it may have that effect. A whole page is given up to a quotation from Cicero: "Brevity, indeed, upon some occasions is real excellence"; and we confess we did not perceive the jest until we had read a few of the eighty unnecessary pages that follow. In almost as lonely beauty is a second quotation, attributed to "a Greek philosopher, 1,000 years ago," to the effect that hard work is the price set by the immortal gods upon all achievements. We are told in the preface, or "foreword," that this new journal will be devoted to the study of "carcinosis as a systemic or constitutional disease," and that phrase, repeated again and again throughout the rambling contributions which follow, gives the clue to the sort of ideas entertained by the editors and collaborators in this production. From the first article we gather that they are smarting under some sense of injustice at the hands of their kinsmen; apparently all great pioneers in science are despised and rejected of men during their lifetime. One of them, Professor Otto Lerch of the Tulane University of Louisiana, tells us that "cancer is the result of violating the laws of Nature"; and in order "to overcome the cancerous habit we must come as near as we can to the simple and normal life of nature, for wild animals, and even those partially domesticated, as the horse, ox, and sheep, do not have cancer." Even if this statement were true, and it is not, few civilized people would care to exchange their present state, even with its contingent worries, for the very short and disagreeable existence of these animals. "Diet, of course, is the first item of importance," says this prophet of the simple and animal life. We know that Nebuchadnezzar (the first vegetarian?) took to a strict diet of grass, but it was during a period of mental derangement. Another writer, who is an instructor in obstetrics, holds that cancer is a nutritional disease and can be treated successfully by a certain régime which, he promises, will give remarkable results. But it must be religiously carried out for many *years*. The unfortunate thing is that some patients will persist in dying before they have given it a thorough trial. The great secret consists in keeping the diet free from animal proteins, the bowels must act three times a day, and, in the intervals, the life should be simple, with moderate exercise, sufficient sleep, and no worry, and the urine should be frequently examined. The editor himself, Dr. L. Duncan Bulkley, writes several of the profound thoughts that are scattered through the pages. Unfortunately his literary style and his knowledge of the elementary rules of grammar do not captivate us. There is one piece of advice which we can commend to those cancer investigators who in their blindness fail to perceive the dawn of the new hope: "The childhood of a *future* cancer subject might prove a fertile field for investigation." Now they know. Dr. Bulkley recounts some remarkable cures he has effected on cases of cancer of the uterus which had been given up by less gifted practitioners. All of these had cauliflower "excresences," extending sometimes down to the "urethal" orifice, some had actually been "curretted," but they were all cured if they persevered long enough. In one case the patient was so ill that her red blood corpuscles numbered 4,500 even after four months of treatment, but she recovered, and seven years afterwards she "was in the woods trout-fishing." And how is the miracle performed? By "being placed on complete dietetic, hygienic, and medicinal measures, and vaginal douche." The latter consists of one pint of hot water with a teaspoonful of strong carbolic and two of borax, some thromboplastin, and a teaspoonful or more of adrenaline. The journal has also reviews and excerpts from current literature. The first book chosen for review was published in London twenty-five years ago, and the author (long since dead) is upbraided for not being familiar with a contribution made about ten years later or with the effects of radium treatment. Another book reviewed (published twenty-one years ago) is by Dr. Charles Creighton, whom the reviewer hails as "perhaps the best pathologist that England has ever known." There has been a persistent rumour in America that Rip van Winkle woke up. But for real gems one should read what purports to be current literature. Few of the original authors would recognize their mangled progeny.

[1] *Cancer*. A practical quarterly journal devoted to the best interests of cancer. Vol. I, No. 1, October, 1923. Pp. 80. Edited by L. Duncan Bulkley, M.D. Published by F. A. Davis Company, Philadelphia. Pa. Price, 5 dollars per volume.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

SINCE the earliest appointments of medical officers of health their statutory duties have been varied from time to time as occasion demanded, but the duty of making an annual report has always remained constant. As long ago as 1853, in a minute of the General Board of Health, it is laid down that this report shall deal with "the sanitary transactions of the year and with whatever incidental changes have been wrought in the physical state of the district and with the sickness, mortality, and atmospheric conditions of the period." With slightly altered phraseology the present-day medical officer of health is instructed by the Minister of Health as to the contents of his annual report, but he must also render such information as may from time to time be required by the Minister. The requirements of the latter for 1923 are contained in Circular 451, which was issued on December 15th. They do not differ materially from those of the past two years. A separate table is for the first time required relating to the cases and deaths from tuberculosis, and there must

included among the new cases not only the primary notifications but also any other new cases coming to the notice of the medical officer of health. This would appear to refer to deaths from tuberculosis which had not been notified during life. Information this year is asked for where there is any excessive incidence of or mortality from tuberculosis in any particular occupation. Under the heading of notifiable diseases information is sought as to the influence of domestic overcrowding upon the incidence of notified diseases, especially scarlet fever, diphtheria, and, where notifiable, of measles, differentiating between cases removed to an isolation hospital and those nursed at home. As in former years, the Registrar-General will furnish medical officers of health with certain statistical information by about the end of February, 1924, and emphasis is laid on the importance of an early issue of the annual report, which it is considered should be completed by the middle of April. A few years ago, after conferring with the Society of Medical Officers of Health, the Minister of Health decided that once in about every five years there should be issued an extended "survey report," and that in the intervening years the document should be styled an "ordinary report." That for 1923 comes under the latter category.

COURT OF INQUIRY INTO THE INSURANCE CAPITATION FEE.

THE Court of Inquiry set up by the Minister of Health in connexion with the terms of remuneration for the insurance medical service after January 1st, 1924, will hold its first session for the taking of evidence on Friday, January 4th, at 10.30 a.m., at the Ministry of Health. A memorandum, with appendices, drawn up on behalf of insurance medical practitioners by a special subcommittee of the Insurance Acts Committee, has been completed, and it will, we expect, be possible to publish this in the SUPPLEMENT to the next issue of the JOURNAL; it is also hoped that memorandums by the Ministry of Health and the General Council of Approved Societies will be available for publication in the same issue. The subcommittee of the Insurance Acts Committee, which has prepared the case on behalf of insurance practitioners, consists of Drs. Brackenbury, Bone, Hardale, Dain, and Williams-Freeman, together with the Medical Secretary and Deputy Medical Secretary, and the memorandum has been revised by the subcommittee with the assistance of legal advisers and of Dr. A. L. Bowley, Professor of Statistics in the University of London. In these circumstances a SUPPLEMENT is not published with this issue of the JOURNAL.

THE NEW REGULATIONS FOR THE D.P.H.

THE new regulations of the General Medical Council for the Diploma in Public Health will apply after January 1st next. Under the old rules candidates for the diploma might enter upon the stated curriculum at any time after obtaining a registrable qualification in medicine and surgery. It was required that the curriculum should last not less than nine calendar months, and should include four months' stay in a laboratory, six months' practical study of the duties involved by public health administration, and attendance at least twice weekly for three months on the practice of a hospital for infectious diseases. The new rules require that a period of not less than two years should elapse after obtaining a registrable qualification before admission to the final examination for a public health diploma. The curriculum must extend over not less than twelve calendar months; at least five months must be given to practical laboratory instruction in bacteriology and parasitology, in chemistry and physics in relation to public health, and in meteorology and climatology. The regulations as to attendance at a hospital for infectious diseases are made somewhat more stringent. Further, the candidate must have six months' practical training under a medical officer of health, and the time cannot be reduced by attendance on lectures, as under the old regulations. The practical training must include maternity and child welfare, the services relating to school life, venereal disease and tuberculosis, industrial hygiene, and food, meat, and milk inspection. The examination will consist of two parts. The first will cover bacteriology and parasitology (with medical entomology), chemistry, physics, metereology, and climatology. The second part includes hygiene and sanitation, epidemiology and infectious diseases, sanitary laws and vital statistics, and public health administration. There will be practical examinations in infectious diseases, food inspection, and inspection of premises. Neither part of the examination can be entered on until the relative courses of instruction (after registration in medicine) have been completed, and Part I must be passed before admission to Part II.

THE PARLIAMENTARY TRIANGLE.

THE new Parliament is to assemble on Tuesday, January 8th. The first duty of the House of Commons will be the election of Speaker. This has to be made afresh by each Parliament; but there is no reason to doubt that Mr. Whitley will again be called to the chair. After that members will be sworn in, and the State opening by the King will not take place until Tuesday, January 15th. This ceremony will, in the ordinary course, include a King's Speech, which usually forecasts the business of the session. In the present instance the situation is peculiar, inasmuch as it is understood to be the intention of the Labour party, upon the motion for an Address in reply to the Speech, to move a vote of no confidence in the Government. Mr. Asquith's declaration at a meeting of his party indicated that the Liberals would be asked by him to support such a vote. Assuming that Mr. Baldwin's ministry is defeated there will be an interval of a few days for the formation of a new ministry by, as is anticipated, Mr. Ramsay Macdonald as the head of the party (the Labour party) next largest to that of the Conservatives. As no purpose would be served by any lengthy general debate on the Address, the expectation is that the discussion on the vote of no confidence will be taken promptly, that the division will take place on Thursday, January 17th, and that the new ministry would be in office in the following week. As the Conservatives and the Liberals in opposition would, if on any occasion they voted together, be in a majority, it is impossible to forecast the probable course of events.

A DISCUSSION on the use of vaccine therapy will take place at a joint meeting of the Sections of Medicine, Pathology, and Therapeutics and Pharmacology of the Royal Society of Medicine at 4.30 p.m. on Tuesday, January 8th. It will be opened by Sir Almroth Wright, and it is expected that Sir Thomas Horder and Professor Dreyer of Oxford will take part in it. The next sessional meeting of the Royal Society of Medicine will be held on Wednesday evening, January 16th, when the Fellows, Associates, and their friends will be received by the President and Lady Hale-White at 8.30. Dr. Arnold Chaplin will give a brief discourse on famous medical men of the eighteenth century, with lantern illustrations of portraits, at 9 o'clock.

England and Wales.

THE WELSH NATIONAL MEDICAL SCHOOL.

THE trustees of the Rockefeller Foundation quickly followed their gifts to the University of Edinburgh for the extension of the facilities for the teaching of surgery by giving £14,000 to the Welsh National Medical School at Cardiff for the development of its medical unit. The money is to be used for the building of laboratories, the provision of part of the initial equipment, and the improvement of the clinical facilities for the medical unit at the Cardiff Royal Infirmary. It is stated that in making this gift the trustees have been influenced by the fact that the school is a national institution; it was felt that conclusive evidence of the national character of the school was afforded by the fact that local authorities all over Wales have agreed to contribute the product of one-eighth of a penny rate to the recent appeal on behalf of the medical school. The trustees were influenced also by the further fact that the authorities of the Cardiff Royal Infirmary have now been able to allocate the minimum number of beds needed for a professor of medicine. The gift is generous, but it will be noted that it is ear-marked for certain special purposes, and should, therefore, not be allowed to diminish the force of the special appeal launched some time ago. The school is in need of a very considerable sum of money for capital purposes; it requires more endowments and a larger income to cover the cost of maintenance. As the *Western Mail* says in announcing the gift, "The school has a substantial claim and a growing claim to the benevolence of the wealthy and of local authorities in Wales."

POST-GRADUATE COURSES IN LONDON.

In association with the Fellowship of Medicine, the North-East London Post-Graduate College is holding an intensive course at the Prince of Wales's Hospital, Tottenham, N.15, from February 4th to 16th. It will include demonstrations of clinical methods and cases, lecture demonstrations, and work in the general and special departments; also afternoon lectures at 4.30. These lectures will be free to general practitioners who are members of the College or of the Fellowship; the complete syllabus will be available shortly. The fee for the course is £3 3s., or £2 2s. for either week.

As already announced, various courses in special subjects have been arranged for next month, including an intensive course in cardiology at the National Hospital for Diseases of the Heart, from January 14th to 25th; a course in children's diseases at the Infants' Hospital, Vincent Square, from January 7th to 19th; and a four weeks' course in urology at St. Peter's Hospital for Stone from January 7th to February 2nd. Lectures on the treatment of common diseases of the nervous system will be given at the West End Hospital for Nervous Diseases in the out-patient department, 73, Welbeck Street, from January 7th to February 11th; also eight demonstrations in the diagnosis and treatment of acute infectious fevers at the North-Eastern Fever Hospital (St. Ann's Road, Tottenham) from January 9th to 26th. A syllabus of any of these courses, with full particulars, can be had from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

The Tuberculosis Section of the Clinical Report for 1922 of the Medical Officer of Health for the City and County of Newcastle-on-Tyne contains an interesting reference to the use of artificial pneumothorax in the treatment of pulmonary tuberculosis. This procedure has been limited to cases of mainly one-sided disease, or to those in which though the disease is widely spread the symptoms are only slight. The results of the treatment have been good, and a more detailed statement is promised in the next annual report. On the other hand, treatment by tuberculin has been almost abandoned in the sanatorium. The tuberculosis medical officer has been continuing his research into the interrelations of influenza, pneumonia, and pulmonary tuberculosis, and finds that the last named is but rarely a sequel of the first two, but occurs more frequently after illness notified as influenzal pneumonia. He hopes to publish soon a summary of this investigation.

Scotland.

WEST OF SCOTLAND FOREIGN SERVICE MEDICAL CLUB.

THIS club, which consists of members of the medical profession resident in the West of Scotland who were overseas on service during the war, held its fifth annual dinner in the Grosvenor Restaurant, Glasgow, on December 18th, with the President, Colonel A. D. Moffat, in the chair. There were present as guests of the evening Dr. T. F. Dewar, C.B., president of the East of Scotland Foreign Service Medical Club, Dr. W. T. Gardiner, secretary of that club, and Professor Archibald Main, D.D., of the University of Glasgow. Dr. Dewar, in proposing the toast of the club, said that it was an honour both to himself and to the Foreign Service Club of the East of Scotland to be given this opportunity of expressing the hope that the Glasgow club should flourish and prosper. To him the memories of the war had passed, as it were, through a sieve, saving for him only those episodes which had been bright; the pleasant memories had been salved, and the sadness and bitterness had passed into oblivion. As a private medical practitioner in earlier life, later as a soldier, and now as a civil servant, he had had an opportunity of meeting his colleagues in various circumstances, and he was glad that the profession had in all these spheres demonstrated its devotion, courage, and self-sacrifice. It was his sincere hope that the club which had so kindly entertained him that evening should sustain its vigour and maintain that comradeship which had been founded during the great war. The President, in his reply, referred briefly to his earlier Territorial experience, his more recent experience on active service, and the valuable friendships he had formed, which he hoped would ripen and strengthen in the coming years. An attractive and varied musical entertainment followed.

THE VOLUNTARY HOSPITAL SYSTEM.

The fifth annual meeting of the League of Subscribers to the Royal Infirmary of Edinburgh was held in the Synod Hall, Edinburgh, on December 13th. Mr. Andrew Eunson presided over a large audience. Mr. Russell Paton, Organizing Secretary of the League, in submitting the annual report, stated that while the prolonged depression in industry had been responsible for diminished contributions from the employees in certain trades, the falling away had been more than counterbalanced by the wider adoption of the League scheme of collecting. In the past year it had gathered from various groups of subscribers, comprising industrial employees, those engaged in commercial establishments, and the staffs of schools and government offices, the sum of £20,346 12s. 8d. The number of individuals now subscribing under the scheme not less than one penny weekly was 72,000 in greater Edinburgh and 22,000 in country districts. This was an increase of 9,000 subscribers over last year. The amounts thus subscribed had been rising steadily for the past five years, having been £4,435 in 1919, £13,007 in 1920, £17,808 in 1921, £18,333 in 1922, and £20,346 in 1923. Combined with this, the contributions raised on a similar basis from miners amounted now to £15,000 per annum, and from other workers in the provinces to £2,000 per annum. The total of £38,000 from working-class contributors was a long way ahead of the £8,000 derived from this source ten years ago, and had brought the Royal Infirmary of Edinburgh abreast of any other large hospital in regard to the support derived from massed contributions. Sheriff Crole, K.C., one of the Managers of the Royal Infirmary, said that the patients treated in the wards numbered 15,043 during the past year, as compared with 14,15[illegible] during the previous year; and there had been 46,693 out-patients, showing an increase of 4,800. Very considerable economies perfectly consistent with absolute efficiency had been made and the cost per bed had gone down to £133 11s. 4d., a decrease of £3 2s. 11d. from the preceding year. The total ordinary income was £110,150 this year as compared with £99,171 the year before. It was a great satisfaction to him to be able to report that the Infirmary was financially in such a very sound condition, and it was another great triumph for the voluntary system

It had now become possible to undertake some extensions. Two small wards were to be added at once to the ear, nose, and throat department at a cost of £12,000. A new *x*-ray department would be built at a cost of about £40,000. When it was built and equipped it would be the finest *x*-ray and electrical department in Great Britain. The upkeep would be a heavy charge and a whole-time director would be required, but it was hoped that this addition would be completed in the course of next year. Then they must face extension of the Infirmary, and they hoped to get ground for this in the neighbourhood. The question of a new maternity hospital must be tackled at once, and it would be wise to consider whether it would not be more economical and more efficient to have the maternity hospital a part of the Royal Infirmary.

New Wing for Victoria Infirmary, Glasgow.

The annual meeting of the Victoria Infirmary of Glasgow was held on December 6th. Lord Provost Montgomery, who presided, stated that it was proposed to erect a new pavilion for patients, together with additional accommodation for nurses, at a cost of £100,000. Mr. William Gray, chairman of the Board of Governors, said that the erection of the new pavilion would be commenced early in 1924, and when finished would provide 105 new beds. Their maintenance would involve an additional £10,000 yearly.

India.

Honorary Staff in Civil Hospitals.

The Surgeon-General, addressing a delegation of the Sind Medical Union, at Karachi, on November 14th, expressed himself as being strongly in favour of appointing an honorary staff in civil hospitals wherever possible. The process would have to be gradual to avoid dislocation of hospital routine and might conveniently start with the appointment of specialists—for example, in ophthalmology. He also hoped to see an extension of post-graduate hospital work, including residential hospital appointments for the newly qualified.

Co-ordination of Medical Research.

A recent conference of medical men from almost all parts of India was held in Calcutta, with a view to devising a system of communication between research workers in different provinces. It is felt that there is a great need that all those who are engaged in the investigation of the causes of disease, or of curative and preventive methods, should be in far closer communication than is at present the case, so as to avoid overlapping of effort and waste of labour.

Lady Reading Hospital.

The building of the Lady Reading Hospital for Women and Children, which is to replace the present Lady Dufferin Hospital, now inadequate for the work, is making good progress and should be ready for occupation by next May. The Lady Dufferin Hospital will then become an infant welfare centre, but will retain its present out-patient department for use in connexion with the wards of the new hospital, of which eight will be private and self-contained, and used for paying patients. The whole hospital will be equipped and staffed on the most modern lines, and will be under the superintendence of Dr. Houlton of the Women's Medical Service, who is at present in charge of the Dufferin Hospital. A special feature of the work will be the systematic training of Indian ladies as qualified nurses. The well known interest of the Countess of Reading in this work is further exemplified by her offer of medals for competition in Delhi, and in each Indian State, during the baby week of 1924, the condition being made that the mothers must have been attending child welfare centres.

The Kala-azar Menace.

The Bengal Government has issued a statement dealing with kala-azar in Bengal. Three hundred medical men have received special training in the diagnosis and treatment of this disease, and it is recommended that a model kala-azar centre should be opened with the co-operation of private practitioners at each district headquarters as the centre of a preventive campaign. There appears to have been a steady increase in the incidence of this disease: in 1911 only 1,541 cases were treated, in 1919 the number had risen to 4,290, in 1920 to 7,382, in 1921 to 11,231, and in 1922 to 18,506, which was equivalent to 397 cases per 10,000 of the population. It is feared, moreover, that there is a far greater prevalence of the disease than the official figures indicate, and that if active preventive measures are not quickly taken there is said to be a distinct risk of 60 to 80 per cent. of the population of Calcutta being infected within six or seven years.

Antivenereal Campaign.

The fifth annual report of the Bombay League for combating venereal diseases contains a carefully compiled statistical record of the work of the League during the twelve months ending January 1st, 1923. There was a considerable increase in the number of patients treated in the dispensary, the average daily attendances of new and old cases being between seventy and eighty. The source of infection is traced whenever possible, and the whole of the work is conducted in close co-operation with medical practitioners and various institutions. The pathological investigations are carried out at the Grant Medical College Bacteriological Laboratory, and the Wassermann tests are continued for two years after the cessation of treatment. Post-graduate teaching is provided and the general public is supplied with literature.

Krishnarajendra Hospital, Mysore.

The report for 1922 of the Krishnarajendra Hospital, Mysore, contains evidence of the excellent work that is being carried out there. A total of 53,157 patients were treated during the year, of whom 2,227 were in-patients; it is worthy of special comment that fifty were suffering from malignant growths. There is a prevalent idea that malignant disease is extremely rare in India, but it would seem that all parts of the country are not equally immune. In the course of the year 1,089 major operations and 1,240 minor operations were performed. The work comprised the treatment of eye diseases (7,004 cases), digestive troubles (5,886 cases), malaria (4,787 cases), ear diseases (4,172 cases), respiratory diseases (3,962 cases), injuries (2,157 cases), and rheumatism (2,047 cases). There were 1,188 cases of venereal disease, 995 of liver disease, 823 of dysentery, and 196 of all forms of tuberculosis. Dr. Mahomed Usman, the superintendent of the hospital, is to be congratulated on the valuable services rendered by this institution.

Correspondence.

RECURRENT OR HABITUAL DISLOCATION OF THE SHOULDER-JOINT.

SIR,—To your issue of December 15th (p. 1132) Mr. A. S. B. Bankart contributes an interesting article upon recurrent or habitual dislocation of the shoulder-joint, and puts forward certain suggestions as to causation and treatment of this condition. In November, 1919, I read a paper on this subject at the meeting of the British Orthopaedic Association, and in May, 1920, the *Journal of Orthopaedic Surgery* published an article embodying this paper.

I then reported that I had performed a deltoid flap operation upon a number of patients whose joints had been dislocated from twelve to twenty-nine times and that I was convinced of its value. Between that date and July, 1922, I had an opportunity of performing the operation on three other cases—two in my own hospital clinic and one at Manchester Royal Infirmary by the kind invitation of Professor Telford. These patients had each suffered more than eleven dislocations, and one of them had been dislocated six times since a capsulectomy. There has only been one case of redislocation in these seven cases since the deltoid flap operations were done, and in this case the violence causing the redislocation was very severe.

This brings me to Mr. Bankart's theory as to the cause of recurrent dislocation—namely, that recurrence follows only in those cases in which the primary dislocation is caused by a fall on the elbow or shoulder producing a thrust forwards. In the cases which I have seen the dislocations were produced in the usual manner with the arm outstretched, and they were all reduced in the casualty room in the routine method. I can hardly think that footballers, playing under either code, usually fall "with their arms close to their sides." One of my patients was a well known professional Northern Union three-quarter who first had his shoulder dislocated by a fall forwards when travelling at full speed. He was tackled low down and fell with outstretched arms. This is the only patient upon whom I have done a capsulectomy (1918), and, as he soon recurred, I did a deltoid flap (1919). He subsequently played a season and a half in the Northern Union, once playing for England, and in the last match of the season he came down again in precisely the same way as he did on his first injury.

The joint was again dislocated and I do not believe that any joint would have remained stable under such a strain. One of my patients was an epileptic, but his redislocations were not caused by violence directed to the elbow or shoulder but by irregular muscular contractions. His attacks always occurred in bed, and he threw his arms about with considerable violence, sooner or later producing a redislocation, when he came to the hospital and had the usual Kocher method applied. Mr. Bankart thinks that a deltoid flap can only prevent redislocation by reason of its preventing a full range of joint movement. I have not yet seen a case in which the range of movement has been interfered with, and I can see no reason why the operation should limit movement. As to whether or no the flap contracts with the rest of the deltoid I am not convinced, but I am inclined to think that it soon loses its contractility and simply remains as a passive fibrous obstruction to further dislocation, forming a thick fibrous band surrounding the lower half of the joint. But whatever happens to it, I have only seen one of my seven cases redislocate after a deltoid flap operation, and in that case, as I have said, I think that the violence would have sufficed to dislocate a previously normal joint.—I am, etc.,

Manchester, Dec. 17th. ROBERT OLLERENSHAW.

SANITATION IN INDIA.

SIR,—Would you permit me to endorse what was stated by Colonel W. G. King, C.I.E., I.M.S., in the first part of his letter published in your issue of December 15th, 1923, regarding the teaching of sanitation in schools in India? For the last forty years sanitarians in that country have been keenly alive to the part that instruction in public and personal hygiene should take in schools. As far back as 1888 I wrote a small book entitled *Rudiments of Sanitation for Indian Schools*. It went through several editions in ten years, and was translated into three of the Indian vernaculars. It was used as a textbook in a large number of schools in Southern India, the Deccan, and in some Native States, and pupils going up for middle class (pre-matriculation) certificates were examined in it. Schoolmasters compiled catechisms on the book. Please forgive this personal reference; it shows that theoretical instruction in public and domestic hygiene has not been altogether neglected in Indian schools. There has, however, been little done in the shape of practical tuition and demonstration. The book mentioned did not reach the villages of agricultural districts and therefore failed in one of its objects.

The education of the peasant and poorer classes of India in sanitation will take a long time, but it will take longer still to remove their prejudices and cause them to appreciate the advantages such education confers. We hear it often glibly stated that "it is only necessary to teach the people of India the first principles of general and personal hygiene." The carrying out of this advice is extremely difficult in the vast continent of India; the people have their own ideas of hygiene, some of which are associated with religious ritual and spiritual authority. I am convinced, however, that it is our duty to continue this elementary teaching in hygiene patiently and persistently. The full benefit will not be observed until the matter taught has become part and parcel of the routine life of the people. The Indian Administration should not be discouraged by slow progress; the full awakening of the sanitary conscience of the people of the British Isles took well over half a century.

Western sanitation, modified to meet the requirements of India, is an importation not much more than sixty years old, and I believe it would lapse into decay, and possibly complete dissolution, in a single generation or so, if not animated and fostered by Western impulse—it has not yet been grafted into the daily life of the people. As health officer of a large municipality in a Native State for ten years I was constantly reminded by the municipal councillors that my recommendations for sanitary improvements were far too advanced for local application or adoption; this remark was often hurled at me when even elementary improvements were suggested. The apathy of district boards and town municipalities in sanitary matters is a dead weight which the health officer in India has to accustom himself to carry in the race of sanitary improvement. The Municipal Acts of all provinces give comprehensive powers, but most of them are dead letters because of the indifference of the majority of municipal commissioners; many are not educated to a right understanding of public and domestic health problems. I do not include the capitals and the larger towns of the provinces in this remark; in such urban areas there is a refreshing sanitary activity and highly praiseworthy public health work is now being done.

In connexion with sanitary education it may be remarked that some local governments, especially those of Bengal, the United Provinces, and Madras, have started hygienic publicity campaigns under assistant directors of public health and a number of specially selected subassistant surgeons in charge of travelling dispensaries, after special training, are being deputed to give lantern lectures and demonstrations on sanitation in rural areas. This move has in it potentialities for much good.—I am, etc.,

P. HEHIR,
Westward Ho, Dec. 16th. Major-General I.M.S. (Ret.).

DIFFICULT MIDWIFERY IN GENERAL PRACTICE

SIR,—Definite differences of opinion on matters of principle are illustrated by Dr. Luker's statement, "If the head does not descend with gentle traction, perforation of the foetal head should be performed" (BRITISH MEDICAL JOURNAL, November 17th), and by that of Dr. Russell Andrews, "When a prolonged pull with the forceps has failed to deliver and the child is dead, it is undoubtedly better to perforate . . ." (BRITISH MEDICAL JOURNAL, December 8th).

The fundamental differences between specialist and general practices have been referred to. The ignorance and obstinacy of the patient, the surroundings unsuitable for procedures so liable to be followed by morbid infection, and the likelihood of the general practitioner being hurried (perhaps to attend his fixed panel consulting hours), or, as often, in a state of chronic tiredness, all make his position the harder.

I therefore submit that the remedy for his occasional misfortunes—for, after all, they are only very occasional ones and even specialists have their failures at times—does not merely rest with his education, but rather with his circumstances. When the demands of ante-natal treatment are considered it is quite certain that in most practices midwifery cannot be practised to the doctor's own satisfaction because there are only twenty-four hours in the day, nearly half of which must go in sleeping, eating, etc.

If a given practice is not paying well enough to justify the employment of an assistant, would it not be practicable for two, or even three, neighbouring independent practices jointly to engage an assistant for midwifery—and possibly diseases of infants? Such an assistant would have to be reasonably experienced and adequately remunerated. One obvious objection is that patients like their own doctor, but, as it is, they not infrequently have to put up with the whole-time assistant. Another objection lies in the absence

of "prospects" for the assistant, for a constantly changing personnel would hamper the scheme enormously. To this I would reply that there are at least some men and women who would be content to work almost indefinitely under such conditions as I have outlined, if free from financial worry. If such a scheme be feasible, ante-natal work can be carried out in a way to gladden the heart of any teacher or consultant. The general public would not be slow to appreciate increases in the amount of time spent on their behalf, and would respond by co-operating. Fees would be raised. Incidentally, encouragement would be given to midwives to do a modicum of ante-natal supervision, and to be paid less inadequate fees. The scheme would thus as a whole tend materially towards that improvement all round in the midwifery service of the nation advocated by Dr. Fairbairn.

The men and women who acted as assistants under these circumstances would be sufficiently keen on their specialty to follow up their cases so as to be able to present definite evidence, for example, as to the predestination of a woman delivered by forceps to a life of prolapse and misery.—I am, etc.,

Southsea, Dec. 15th. R. KELSON FORD.

SIR,—I have watched with interest the recent correspondence on the subjects of "use and abuse of forceps" and "difficult midwifery in general practice." Dr. Fairbairn writes: "The experience of officers of maternity hospitals and gynaecological departments is required," etc. This is my reason for writing. I have just completed four years in sole charge of a maternity hospital with ante-natal and gynaecological departments, in which upwards of two thousand confinements have taken place under my supervision. There were two maternal deaths, one from pulmonary embolus in 1920, and one in 1921 from advanced mitral valve disease in a woman who had just joined the district and had not been to the ante-natal clinic. This compares favourably with the national death rate of one mother for every two hundred and seventy-five births.

The confinements included all sorts of complications, mostly recognized ante-natally and therefore to a great extent deprived of their risks—cases of contracted pelvis requiring Caesarean section, placenta praevia, tumours of the cervix, valvular disease of heart, toxaemias, etc., and one 24 lb. baby. Not a single case of eclampsia occurred during the past two years, although many cases with pre-eclamptic signs and symptoms were treated and cured, and passed through labour safely. External version was done fifty-four times for breech presentations in the ante-natal department without anaesthesia. I failed to turn in five cases, in three of which the child's legs were extended; in one the cord was twice round the neck; and in one case I found no reason for failure. Forceps were used in 7 per cent. of the cases, mostly primiparae.

"There must be something wrong," says Dr. Russell Andrews, "or we should not see patients maimed or dying from the treatment of conditions in which ante-natal examination and appropriate treatment would have resulted in both mother and child surviving undamaged." Dr. Fairbairn says, "Why is it not prevented?" I think the answer is that the maternal death rate will not show any improvement so long as women are not examined ante-natally by doctors with experience in this branch of work and are confined in their own homes. Until ante-natal clinics and maternity hospitals are available throughout the country there will be no great change in the death rate. The largest employer in the State—namely, the army—has organized a system of women's hospitals, ante-natal clinics, and welfare centres with the above childbed death rate. The women now seldom demand to have their confinements in their homes or quarters; they were quick to understand the safety of being seen before their labours commenced and of clean parturition in hospitals. If a relative or friend is not available to look after their other children, they can send them to a crèche. Their husbands live at home but feed for the time at a mess or canteen. If one department of the State can organize this work, why not others? Improvement will follow if ante-natal clinics are established in every town, and midwives and district workers persuade all pregnant women to attend them. The women in our experience soon learn the advantage. Dr. Fairbairn asks for constructive ideas: in my own opinion this is the first and only possible step towards improvement.—I am, etc.,

Louise Margaret Hospital for Women, Aldershot, Dec. 15th. EDWARD L. MOSS, Major R.A.M.C.

HERPES ZOSTER AND VARICELLA.

SIR,—May I, as the originator of the shingles-chicken-pox correspondence in English journals,[1] suggest that when a case of either eruption crops up particular attention should be given to this vexed question. The position as I take it at present is this:

(1) Overwhelming evidence from private practitioners points to a close connexion between the two eruptions, usually in the direction of chicken-pox following shingles, either in the same individual or in contacts after a certain incubation period.

(2) Letters now and then appear from physicians attached to skin hospitals asserting that they have never noticed this connexion; a plausible explanation being that it is the first case of an epidemic that so starts and it is in private practice that first cases are most easily traced to their origin.

(3) All the evidence adduced during the last ten years goes to show that such a disease as "generalized herpes zoster" does not exist and the name should be expunged from the textbooks. In every way the eruption hitherto known by that name differs in no respect from an ordinary chicken-pox rash, either as regards its incubation stage, the appearance and distribution of its vesicles, or its liability to spread infection in susceptible contacts.

The experience of Dr. Sedgwick[2] in respect to the prophecy of chicken-pox following a case of shingles has on several occasions been mine to the extent of photographing a mother's shingles with a view to photographing fourteen days later the rash of chicken-pox on her children.[3]

In the direction of research, I can only tentatively suggest inoculation experiments on the lines of modern cancer research. Being in possession of evidence, as we undoubtedly are, that a course of arsenic may induce an attack of shingles,[4] and that the latter may be followed by chicken-pox, one cannot but admit that we have here all the elements necessary for an artificially induced epidemic of an infectious disease. Should not this fact alone stimulate research in the direction indicated?—I am, etc.,

November 19th. W. P. LE FEUVRE, M.O.H. Knysna, South Africa.

THE SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

SIR,—In the sympathetic obituary notice of my friend, the late Mr. Sydney Stephenson, in your issue of to-day's date, there is one point to which I should like to allude. Referring to the foundation of this Society we read that "His [Mr. Stephenson's] interest in the study of disease in children led him in association with the late Dr. Carpenter to found a society for that special study." I think that this does not fully represent what occurred, and, as all the facts have not been in print previously, I take an opportunity to record them now.

What may be called the initial and "official" steps towards its foundation were taken by Mr. Stephenson and myself at my house, where we conjointly drew up a circular letter and signed it. We addressed it to all the members of the staffs of the children's hospitals in the United Kingdom and to those medical men who were known to be specially interested in the welfare of children. We invited them to attend a meeting at the rooms of one of the established societies, and sought their co-operation. Some thirty to forty responded, and it was decided by a large majority that there was room for such a society, with every prospect of its doing good work. As you say, "the effort attained an immediate success." It will, therefore, I think, be conceded that Mr. Stephenson and

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[1] *Guy's Hosp. Gaz.*, April 26th, 1913.
[2] BRITISH MEDICAL JOURNAL, October 6th, 1923.
[3] *Med. Journ. of S. Africa*, March, 1918.
[4] Hutchinson, Sydenham Society, 1869; Nielsen, Sydenham Society, 1893. Manchester epidemic of beer poisoning, etc.

I were the founders of the society. I may add that this is the view he always held and referred to from time to time in conversation.

It is true that the project had the cordial support of the late Dr. George Carpenter from the beginning, but he did not assume the responsibility of taking the first public steps. He rendered yeoman service, and was editor of the excellent reports. He held at one time, like Mr. Stephenson and I, the office of Chairman of the Council, the highest the society could bestow, as the rules did not provide for a president.

I trust your readers will pardon the intrusion of the personal note, but, as the survivor of the three who are referred to, I feel sure that they who have left us would wish all the facts to be known.—I am, etc.,

London, W., Dec. 22nd. A. H. TUBBY.

Obituary.

SIR J. WALTON BROWNE, M.D., LL.D.,

Consulting Surgeon, Royal Victoria Hospital, Belfast.

IT was with very deep and widespread regret that the intimation of the death of Sir J. Walton Browne was received by the profession in Ulster, and by a very large portion of the community. He had been in good health till some six weeks ago, when signs of heart failure manifested themselves, and he died quietly in his sleep on the morning of December 18th.

John Walton Browne was born in 1845, and was the son of Dr. Samuel Browne, R.N., J.P., who, when he left the navy, practised as an ophthalmic surgeon in Belfast, and became mayor of the town in 1870. His son Walton became a student of the old Queen's College, Belfast, and obtained the B.C. degree, and subsequently the M.D. He studied in Dublin, London, and Vienna, and when he returned to Belfast was soon appointed surgeon to the old Royal Hospital (now the Royal Victoria Hospital), and also to the Ophthalmic Hospital; the former post he held for thirty-seven years, and was appointed consulting surgeon a little over ten years ago; the latter he still held at his death. He was a member of many societies, and was president of the Ulster Branch of the British Medical Association, of the Ophthalmic Section of the Association in 1907, when it visited Belfast, and of the Ulster Medical Society. Sir Walton had been a senator in the old Royal University of Ireland, and on its dissolution he received the honorary degree of LL.D., and became a senator in the Queen's University of Belfast.

Few equalled him in his capacity for friendship; he was exceedingly popular, and his name became a household word throughout the North of Ireland. Although an active man devoted to hospital and surgical practice, he had a retentive memory and a wonderful knack of recalling articles in various medical journals dealing with any obscure point under discussion. His experience was wide, and he would quote case after case in support of the position he assumed in debate. All rejoiced when he was appointed deputy-lieutenant for the city with which he had been connected all his life; and there was a chorus of satisfaction on his receiving the dignity of knighthood from His Majesty when he opened the Parliament of Northern Ireland.

Sir Walton was twice married: he survived both his wives and also his son, but he is survived by his daughter, married to Colonel Young, R.A.M.C. A brother, Dr. Samuel Browne, and a sister, live in England. Much sympathy is felt for these relatives.

SIR LAMBERT HEPENSTAL ORMSBY, M.D., F.R.C.S.I.,

Senior Surgeon, Meath Hospital, Dublin.

WE regret to announce that Sir Lambert Ormsby died at his residence in Dublin on December 21st. He had been in failing health for some time, but, notwithstanding this, had been out of doors as recently as a week before his death.

Lambert Hepenstal Ormsby was born at Onehunga Lodge, Auckland, New Zealand, in 1849, the only son of Mr. George Owen Ormsby, C.E.; his mother was a daughter of the Rev. Lambert Hepenstal, of Altadon, Delgany, co. Wicklow. In his boyhood it was his ambition to enter the Royal Navy. Indeed, after an early education at the Commercial School, Auckland, the Lyceum, and the Grammar School, he left Auckland for London in 1864 with that end in view, but instead he went to the Royal School, Dungannon. He studied medicine, was apprenticed to Mr. George Porter, later Sir George Porter, Bt., and at the age of 19 was a surgeon and physician. He had spent in three years as a student at the Royal College and the Meath Hospital, where he was resident surgical pupil. He began to read for the Army Medical Service in 1869, but at this stage an accident determined his career. In casual conversation with the late Dr. John Morgan, professor of anatomy in the Royal College of Surgeons, he was offered the position of anatomical demonstrator at the institution, and, accepting it, in two years became a skilful practical teacher. In 1872 he became surgeon to the Meath Hospital.

He entered Trinity College, Dublin, and graduated in arts in 1875; in the same year he became a Fellow of the Royal College of Surgeons, and in 1879 took the degree of M.D. Specially interested from an early period of his career in orthopaedic surgery and in the diseases of children requiring surgical treatment, he published two important volumes, the result of much study and practical experience, on *Deformities of the Human Body* and on *Diseases Peculiar to Children*. In 1876 he founded the National Orthopaedic and Children's Hospital (now the National Children's Hospital), a humane and much needed enterprise, with the energetic promotion of which his memory will always be associated. This was by no means the only philanthropic movement which Surgeon Ormsby instituted and in which he took a lifelong interest. He acted as chairman of the Association for the Housing of the Very Poor in Dublin, and the occasions were many upon which his broad-minded sympathies found practical expression.

From the year 1880 until his death Sir Lambert Ormsby devoted himself exclusively to surgical practice. He founded in 1885 the Dublin Red Cross Nursing Sisters' Home and Training School for Nurses, and watched over its development with assiduous care. He acted as senior surgeon to the National Children's Hospital, consulting surgeon to the Drummond Military School, Chapelizod, and honorary consulting surgeon to the Dublin branch of the Institute of Journalists. He was besides a member of the Board of Superintendence of Dublin Hospitals and governor of the Lock Government Hospital. He was a Fellow of the Royal Academy of Medicine, Ireland, and a Fellow of the Royal Medico-Chirurgical Society of London. From 1903 to 1904 he was President of the Royal College of Surgeons, Ireland, and it was during that term—in 1903—that the honour of knighthood was conferred upon him.

Sir Lambert Ormsby was twice married, and had four children (two sons and two daughters) by his first wife. His second wife was Geraldine Matthews, R.R.C., O.B.E., whom he married in 1921.

G. P. CHAPPEL, M.D.CANTAB.,

Physician, Altrincham General Hospital; late Physician, Prince of Wales's Hospital, Tottenham.

WE regret to record the death at Altrincham, Cheshire, on December 15th, from pneumonia, of Dr. G. P. Chappel, who during the past five years had held the appointments of physician to the Altrincham General Hospital and medical officer of health for Bowdon.

George Pester Chappel was born in 1868 at Camborne, Cornwall, of which his father, the late Canon Chappel, was rector. From Marlborough he went to Caius College, Cambridge, and thence to the London Hospital. He graduated M.B., B.Ch.Cantab. in 1892, and proceeded M.D. in 1[illegible]. At the London Hospital he served as house-physician, and afterwards as house-surgeon to the late Sir Frederick Treves; his next post was that of resident medical officer to the City of London Hospital for Diseases of the Chest, Victoria Park. Thenceforward, and until the war, he was engaged in general and consulting practice at Tottenham.

becoming physician to the Prince of Wales's General Hospital and a member of the teaching staff of the North-East London Post-Graduate College. In those days Chappel was an enthusiastic member of R.A.M.C.(T.F.), and subsequently, on relinquishing his commission after the war, he was awarded the Territorial Decoration. He was mobilized in August, 1914, and served continuously in Egypt and France with the rank of major, and later as officer commanding a military hospital in London. Soon after his return to civilian life in 1919 he resigned his post at the Prince of Wales's Hospital, and, leaving London, went to practise at Altrincham, a district with which he already had associations through his wife, a daughter of the late Mr. H. T. Gaddum of Bowdon. There his abilities and his character quickly made him one of the leading practitioners of the district, and his death after a very brief illness is mourned by a large circle of patients and professional colleagues. He will long be remembered in many quarters as a sound physician, an upright gentleman, and a kind and sympathetic friend.

Dr. Chappel had been a member of the British Medical Association for nearly thirty years, and at the time of his death was a member of the Executive Committee of the Mid-Cheshire Division.

THE LATE MR. SYDNEY STEPHENSON.

Mr. A. H. TUBBY, C.B., C.M.G., M.S., writes: As one of Mr. Sydney Stephenson's colleagues for many years, and as one of his intimate friends, I would like to refer to some of the prominent traits in his character. First, his loyalty, loyalty not only to his colleagues, but also to his ideals, for he was severely critical of himself, whilst tolerant and broad-minded to others. He loved friends and valued friendships. He sought them with all his might and treasured them lastingly. There was no trace of capriciousness in him. Next to the joys of his happy home life, friends and friendship were his well tried resources against life's buffets. One great point about him was that he was little troubled as to what people thought of him. He possessed "character" in the sense which has been so finely expressed in the words "Reputation is what men and women think of us: Character is what God and the angels know of us." There was in him, too, a well-spring of human kindness and sympathy, and few men had so many friends. Very many frequently visited him in his long illness, and he always received them with that fine attentive courtesy so characteristic of him. He has passed to his rest, and in the noble words of Robert Browning we remember him as:

"One who never turned his back, but marched breast forward

. . . . . .

Held, we fall to rise, are baffled to fight better,
Sleep to wake."

DR. ALFRED MILLER, medical superintendent of the County Mental Hospital, Hatton, Warwick, died on December 4th. He was educated at Trinity College, Dublin, and graduated M.B., B.Ch.Dub. in 1881. He had been connected with the asylum for about forty years, first as assistant medical officer and for thirty-four years as medical superintendent. He was also medical adviser of the County Mental Deficiency Act Committee, registrar of the Medico-Psychological Association of Great Britain and Ireland, and a member of the committee of management and house committee of the Warneford Hospital, Leamington. He was a keen sportsman, and in his early life was an Irish international Rugby footballer. He is survived by his widow and two daughters.

We regret to record the death of Dr. WILLIAM THOMAS MADDISON, which occurred very suddenly in the early morning of December 9th at Stapleton Road, Bristol, where he had carried on a large practice for over twenty years. He was educated at King's College, London, of which he was a senior scholar and afterwards an Associate. Having obtained the M.R.C.S. diploma in 1881 he became house-physician to King's College Hospital and graduated M.B. (with honours) in the following year, proceeding M.D. in 1886. After a period as assistant medical officer to the Metropolitan District Asylum at Darenth, Dr. Maddison went to Bristol and was appointed surgeon to the Bristol Dispensary. His skill, great abilities, untiring devotion to work, and kindly, cheerful disposition, endeared him to all with whom he came in contact, professionally or otherwise. He had been a member of the British Medical Association for thirty-three years.

By the untimely death, in his 49th year, of Dr. ROBERT WALMSLEY FISHER, Director of the Belgaum Vaccine Institute, the Public Health Department of Bombay has lost one of its most devoted workers. Dr. Fisher was born at Ballymena, County Antrim, Ireland, on November 10th, 1874, and graduated M.B., B.Ch. in 1901 at the Royal University of Ireland. After holding the appointments of resident medical officer of fever and small-pox hospitals at Belfast, and a short experience of general practice, he undertook plague work in the Punjab for about four years from 1902 to 1903 and again from 1904 to 1908. After his return to Ireland he took the D.P.H. (R.U.I.) in 1909. His plague work in the Punjab had attracted such favourable attention that it was felt that the services of such an enthusiastic worker should be permanently secured. In 1911 the Secretary of State sanctioned the creation of an appointment of Director of Vaccine Institute, Belgaum, and on the recommendation of the Government of India offered it to Dr. Fisher, who took charge of the Vaccine Institute, Belgaum, in August, 1911. The vaccine lymph manufactured at Belgaum was successfully used throughout the year in Sind—the hottest part of India—and during the great war he supplied the Bombay army and several oversea forces with a reliable vaccine lymph. In addition to his duties he acted also as civil surgeon, Belgaum, and as deputy sanitary commissioner, S.R.D., for a short time. In 1921 he graduated M.D. (R.U.I.), and his thesis, which had as its subject the history and work of the Vaccine Institute, Belgaum, was deemed worthy of a gold medal; this thesis was published in the *Indian Journal of Medical Research* (vol. 8, No. 2, October, 1920). In 1923 he was awarded the Kaisar-i-Hind medal in recognition of his multifarious services and fine work in connexion with the Vaccine Institute, Belgaum. He was genuinely admired both for his ability and for his generous disposition; he was ever ready to spend himself in the interests of others. The funeral took place on October 26th at the Belgaum cemetery in the presence of a large number of friends. Dr. Fisher leaves a widow, two sons, and a daughter; the elder son has just entered as a medical student at the Royal University of Ireland.

Dr. FREDERICK COLIN BENTZ, who died on October 18th, was educated at Victoria University, Manchester, where he took the degree of M.B., Ch.B. in 1913. He held the rank of captain in the Royal Army Medical Corps, Territorial Force, and saw active service abroad both in France and Gallipoli. He had filled the appointments of district medical officer and public vaccinator in Manchester, assistant medical officer at Baguley Sanatorium, house-physician and house-surgeon at the Manchester Royal Infirmary, and medical officer in charge of the New Bridge Street Hospital in Manchester. Captain F. Arnot Bearn, R.A.M.C.(T.), writes: "I was at the Grammar School with him twenty years ago, and he showed the same quick, sensitive nature and versatility which he developed to a greater degree later in life. I well remember the caricatures he drew, and the parodies he wrote during the election of 1906. He was an omnivorous reader, had a fine taste for English literature, and an undoubted flair for the classics. He was in my year at Manchester University, and we were on 'the house' together. He was the life and soul of any party; no 'last night' was complete unless he gave one of his inimitable burlesques, either of a colleague or one of the staff; and it was characteristic of him that no one enjoyed his burlesques better than the man who was the original of them. When war broke out he was one of the first to volunteer, and I was not surprised to hear of his struggling back to the trenches in France before his terrible wounds had really healed." A brother officer in the 42nd Division Field Ambulance bears witness to the unfailing and exuberant high spirits and power of extracting humour from the grimmest and most unpromising

situations which made Captain Bentz a real inspiration during the months spent at Cape Helles: "He could always dispel the gloom of his brother officers by some whimsical imitation of a former teacher or an extravagantly witty burlesque, and his popularity amongst the rank and file was unbounded. When he received the severe chest wound which laid the foundation of prolonged ill health, and eight years later was the cause of his death, there were general expressions of grief and consternation, and the stimulus of his cheerfulness was deeply missed after his departure." His partner, Dr. Wolfendale, bears similar witness to Dr. Bentz's bright and cheerful disposition, which endeared him to the hearts of the people with whom he came in contact. Dr. Bentz married Miss Roberta Thompson, who, with an infant son, survives him.

Dr. ROBERT IRVINE GARDNER of Enfield died recently in a nursing home following an operation for an internal malady, aged 58. He was the son of Mr. James Gardner of Glasgow, and graduated M.B., C.M.Glas. in 1886. When he first went to Enfield he was assistant to the late Dr. Collyer, whom he succeeded in 1896 as medical officer of the Chase Farm schools. Dr. Gardner was also medical officer and public vaccinator for the Enfield district and workhouse of the Edmonton Union, and was a member of the North Middlesex Division of the British Medical Association. He is survived by his widow and young son.

Dr. THOMAS PATTERSON DEVLIN, of Balfour, British Columbia, died at Westminster, British Columbia, on October 30th. He was educated at Queen's College, Belfast, and took the L.R.C.P. and S.Edin. in 1882. Afterwards he went into practice at Great Yarmouth, and while resident there he joined the 1st Norfolk Volunteer Artillery, in which he held the rank of captain from November 22nd, 1899; later he held the same rank in the R.F.A.(T.F.). Five years before the war he went to Canada, where he took the diploma of L.C.P.S. British Columbia in 1909. He joined the army for the late war as a temporary lieutenant R.A.M.C. on February 10th, 1915, became captain after a year's service, and later was promoted to major. When demobilized in 1920 he returned to Canada.

Dr. DELCROIX DE COSTER, President of the Belgian Urological Society, has recently died.

Professor ALEXANDER ELLINGER, a well known German pharmacologist and dean of the medical faculty of Frankfort since its establishment in 1914, has recently died at the age of 53.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 19.h the following medical degrees were conferred:

M.D.—A. W. Uloth, E. H. R. Altounyan, E. Wordley.
M.B., B.CH.—E. Tagoe.
M.B.—R. N. P. Wilson, G. H. Caiger, C. Dunscombe.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.CH.—*Part I—Surgery, Midwifery, and Gynaecology:* E. V. Beale, F. M. Collins, H. V. Coverdale, R. Cove Smith, W. H. Craib, G. J. V. Crosby, D. E. Cuffey, J. R. B. Dearden, V. W. Dix, J. H. Doggart, R. B. Fawkes, W. H. Gervis, R. A. Highmoor, J. W. Hope Simpson, R. Jackson, J. P. W. Jamie, W. A. Lister, H. R. Matthews, G. A. Metcalfe, H. D. N. Miller, S. M. Milner, E. G. Morris, J. Ness-Walker, C. E. Newman, G. G. Penman, A. D. Porter, E. A. B. Pritchard, R. H. T. Rea, R. L. Rhodes, W. L. Roberts, R. A. M. Scott, W. G. Scott Brown, F. A. H. Simmonds, L. V. Snowman, G. L. Thompson, G. K. Thornton, K. W. Thorp, F. C. O. Valentine, S. Vatcher, A. L. Walker, R. K. Wilson, F. R. Winton, H. Yates. *Part II—Principles and Practice of Physic, Pathology, and Pharmacology:* J. C. Ainsworth-Davis, L. J. Bendit, N. E. Chadwick, W. H. Craib, F. E. Graham-Bonnalie, G. T. Henderson, E. G. Holmes, J. W. Hope Simpson, R. Jackson, L. P. Lockhart, C. A. Lupton, R. J. Lythgoe, T. K. Maclachlan, F. H. Mather, G. A. Metcalfe, G. C. Millis, E. S. Page, R. J. V. Pulvertaft, B. E. Schlesinger, M. H. Webb Peploe, R. H. White, R. K. Wilson; also G. M. Brown (Girton).

UNIVERSITY OF LONDON.

MISS ELEANOR M. SCARBOROUGH, M.B., B.S., B.Sc.Lond., has been appointed as from January 1st, 1924, to the recently instituted Readership in Pharmacology tenable at the London School of Medicine for Women.

Professor Hugh MacLean, D.Sc., M.D., Ch.B., has been awarded the William Julius Mickle Fellowship (of the value of £200) for 1924 in respect of the work which he has carried out during the past five years in experimental medicine. This Fellowship is awarded annually, under the terms of the Mickle Bequest, to the man or woman who, being resident in London and a graduate of the University, has done most to advance medical art or science within the preceding five years.

The following candidates have been approved at the examination indicated:

M.D.—BRANCH I (*Medicine*): J. V. C. Braithwaite, R. T. Lewis, M. Maizels, Merell Philippa Middlemore, M. J. Panthaky. BRANCH III (*Psychological Medicine*): *Mary R. Barkas. BRANCH IV (*Midwifery and Diseases of Women*): *Sybil G. Mocatta. BRANCH VI (*Tropical Medicine*): T. L. Bomford.
M.S.—BRANCH I (*Surgery*): H. J. McCurrich, A. C. Perry.
* University Medal.

UNIVERSITY OF LEEDS.

THE following candidates have been approved at the examinations indicated:

M.D.—H. Caplan, R. E. Jowett, A. Sheard.
FINAL M.B., CH.B.—*Part I:* D. R. Allison, M. Backwell, Sara N. S. Barker, Rosie B. Becker, Kathleen Boddy, T. H. Carr, J. Cohen, R. Cohen, F. R. Curtis, J. S. Dinsdale, J. Duncan, J. Ewing, G. K. Fitton, W. S. Flowers, Elsie G. M. Ford, G. Gorstige, J. R. S. Greenwood, P. V. Hardwick, J. L. Hartley, A. Hemingway, W. R. Hill, W. O. S. Hornby, S. Leviten, G. M. D. Lobban, A. V. McLean, M. Masser, J. L. Moorhouse, W. Murphy, S. Nagley, J. H. O'Donnell, Edith V. Olver, R. S. Pyrah, M. Rabinovich, Rosamond E. Roper, J. W. Silversides, S. K. Sledge, Ann Sugden, G. W. Taylor, R. W. L. Ward, A. C. Welch, D. Zimmerman. *Part II:* C. H. Ackroyd, J. Cardis, G. Chambers, A. Franklin, G. D. Gordon, Muriel D. Graham, E. L. H. Jones, I. Kovolman, A. H. Morley, J. W. Pickard, Kathleen M. Potter, N. A. Scadding, K. A. Turner. *Part III:* *R. Chester, *F. N. Foster, *E. Holmes, *Gretta M. Wardle, Marjorie Baxter, D. Braham, R. E. Crockatt, J. Freeman, Marjorie M. Jackson, R. H. Lodge, R. Marinkovitch, H. M. Petty, H. Sheard, J. S. Walker, N. F. Winder.
D.P.H.—Effie G. Bolton, Mabel M. Maclean, M. J. O'Neill, Jessie Sheard.

The William Hey Medal for 1923 was awarded to G. F. Walker, who obtained the M.B., Ch.B. degree with first class honours in June, 1923.

The West Riding Panel Practitioners' Prize in Medicine was awarded to Myer Cohen, who obtained the M.B., Ch.B. degree with second class honours in June, 1923.

* With second class honours.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B. (*New Regulations*).—C. N. Aldred, W. Broadhurst, J. F. Bromley, Bessie E. Cook, *R. W. Fairbrother, Madge E. Heywood, Bertha Kahn, L. W. Kay, A. C. Kelly, V. F. Lambert, W. B. McKelvie, Marjorie M. O'Dea, R. W. Parker, Marjorie Robinson, Kate B. Scott, Agnes Soaston, H. F. Shaw, Marjorie Thompson, Sarah Walker, Jane M. Wilde, Marjorie Yonait. *Obstetrics and Surgery:* R. S. Adam, Margaret A. Bromhall, W. C. V. Brothwood, T. A. Brown, J. A. Crowther, Mary S. Davies, T. E. Davies, R. Ellis, L. Fay, C. R. Fielding, A. G. Forbes, Anne H. Glancy, J. W. Graham, P. Gregory, E. Holmes, Winifred L. Horton, J. N. Hudson, Phyllis Kaufmann, D. Kemp, Hilda M. Linford, F. R. Lockhart, S. Bope, L. J. Prosser, A. Riley, Eileen Sheehan, Dorothy Simmons, J. Sims, G. S. Smith, A. R. Somerford, J. Troup, H. M. Turner, C. Willcocks, G. Williamson. *Obstetrics:* J. H. Anderson, S. Bernstein, Madge E. Edwards, P. G. Johnson, Alice M. Orrel, R. F. Stubbs. *Forensic Medicine:* C. E. W. Bower, Gladys F. A. McLean. *Hygiene and Preventive Medicine:* C. E. W. Bower, C. Eccleston, Gladys F. A. McLean, W. M. Roberts, H. C. Smith, E. Whiteside.

* Awarded distinction in Obstetrics.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—G. R. Bailey, L. H. Copping, T. R. Forsythe, C. H. Greaves, C. Myers, J. E. Tannian.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following are the successful candidates at the recent primary examination for the Fellowship of the Royal College of Surgeons of England; 144 candidates presented themselves, of whom 105 were rejected:

G. F. G. Batchelor, R. Broomhead, H. J. A. Colvin, E. H. Derrick, R. I. Dodds, P. Dooley, N. L. Edwards, W. S. D. Elder, D. C. M. Elles, C. W. Flemming, H. L. H. H. Green, W. J. Henry, A. Hobson, B. B. Hosford, F. J. Jauch, Erna H. Jebens, F. R. Law, A. E. Lee, Marjorie Low, C. H. G. Macafee, G. F. H. McCormick, J. Mintzman, E. D. Moir, W. M. Muirhead, A. L. te Water Naude, H. P. Nesom, Marion G. Palmer, R. T. Payne, H. R. Pomroy, S. M. Power, M. M. Riad, G. D. Robb, A. R. Rutnam, J. J. Savage, E. X. Scah, S. V. Unsworth, R. M. Walker, J. Whillis.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following candidates, having passed the requisite examinations, have been admitted Fellows:

Albert Clifford Abbott, Thomas George Doughty Bonar, Hendrik Johannes Petrus Bruwer, Gerrard Burnett, Thomas Lindsay Clark, Robert Malcolm Dancatt, Ernest Chalmers Fahmy, Griffith John Hughes, William Ibbotson, Hubert Sydney Jacobs, Thomas Forsyth McMurray, James Herbert Rawlinson, Creina Shepherd, Charles Hamblen Thomas, Henry Ellis Yeo White.

Sinnatamby Thambipillai has been admitted a Licentiate of the College.

The Services.

D.M.S. INDIA.

MAJOR-GENERAL O. L. ROBINSON, C.B., C.M.G., Army Medical Service, has taken up the post of Director of Medical Services of the Army in India in succession to Major-General Bowle-Evans, Indian Medical Service, who recently vacated the appointment, which he has held only since July last.

DEATHS IN THE SERVICES.

Colonel George Taylor Goggin, Army Medical Staff (retired), died at Folkestone on December 16th, aged 70. He was educated at Queen's College, Cork, and took the L.R.C.P. and S.Edin. in 1877. He entered the army as surgeon in 1880, attained the rank of colonel in 1907, and retired on January 14th, 1910. He served throughout the South African war, 1899 to 1902, and held the local and temporary rank of colonel. He took part in the relief of Ladysmith, including the actions at Colenso, Spion Kop, Vaal Krantz, Tugela Heights, and Pieter's Hill; operations in Natal, including the action at Laing's Nek; in the Transvaal, east of Pretoria; and in the Orange River Colony, where he was in charge of a general hospital. He was twice mentioned in dispatches, and received the Queen's medal with six clasps and the King's medal with two clasps. After his retirement he rejoined for service in the late war, when he was employed as D.D.M.S., Western Command, and later as A.D.M.S. at Devonport.

Lieut.-Colonel John Latchford, R.A.M.C. (retired), died at Falmouth on November 29th, aged 78. He was born on April 14th, 1845, and educated at Trinity College, Dublin, where he graduated A.B. in 1864 and M.B. in 1865. He entered the army as assistant surgeon on March 31st, 1868, served in the 1st Foot, the Royal Scots, under the old regimental system, became surgeon major on March 31st, 1880, and retired on March 27th, 1889. While on the retired list he was employed at Galway in 1896-1901, and in Dublin from 1902 to 1908.

Lieut.-Colonel Daniel Grove Marshall, Bengal Medical Service (retired), died in Edinburgh on December 16th. He was born on September 4th, 1860, the son of Robert Marshall of Shrewsbury, and educated at Edinburgh University, where he graduated M.B. and C.M. in 1885. After filling the post of house-surgeon of the clinical wards in the Edinburgh Royal Infirmary, he entered the I.M.S. as surgeon on March 31st, 1888, passing first both into and out of Netley, where he took the Herbert prize, the Parkes Memorial medal in hygiene, and the Montefiore prize and medal for surgery. He became major on March 31st, 1900, but was placed on temporary half-pay on account of ill health in 1904, and had to retire, for the same reason, in the following year. He settled in Edinburgh, where he became lecturer on tropical diseases in the Extramural Medical School in 1905 and in the University in 1909. He served in the Burmese war in 1889-92, receiving the medal with a clasp; on the North-West Frontier in the Isazai campaign of 1892, and in the Tochi in 1897-98 (medal with clasp); and in the China war of 1900, including the relief of Peking (medal with clasp). In October, 1918, he was appointed a temporary lieutenant-colonel in the R.A.M.C., and was consultant on malaria for the Scottish Command, and received an honorary step of promotion to lieutenant-colonel from October 15th, 1919.

Medical News.

NEGOTIATIONS have recently been conducted between the Danish Medical Association and the Danish Government with regard to the former's request that doctors' motor cars should show a distinctive sign indicative of certain privileges, such as the right to leave a car outside a patient's house, to use roads not intended for ordinary motor traffic, and to exceed the ordinary speed limit. The authorities have not granted all that was asked, but it has been intimated to the Danish Medical Association that the police will be given instructions to allow some at least of the latitude desired for the medical use of motor cars. This concession is the more welcome as it has long been felt to be a grievance that the doctor who leaves his car in a street to attend to a case of difficult labour has been as liable to prosecution as the lady who spends an hour receiving manicure attention while her car waits in the street.

A COURSE of free lectures on cancer will be given by members of the staff at the Cancer Hospital, Fulham Road, Kensington, to medical practitioners, on Wednesdays at 4.30 p.m., commencing January 2nd, 1924, and concluding on March 19th. The lectures will deal with every aspect of the subject, and an endeavour will be made to present the developments of research in etiology, diagnosis, and treatment.

THE fourth annual dinner and dance of the Panel Committee for the County of London will be held at the Wharncliffe Rooms, Hotel Great Central, Marylebone Road, Road, N.W.1, on Thursday, January 3rd, 1924, at 7 p.m. Reception, 6.30; dancing 9.30 p.m. to 2 a.m. The dinner is open to all practitioners and their friends. Tickets (gentlemen 21s., ladies 15s., exclusive of wines) may be obtained of any member of the committee, or of Dr. C. L. Batteson, dinner secretary, 228, Goldhawk Road, W.12, or of Dr. Robert J. Farman, Staple House, 51, Chancery Lane, W.C.2.

THE Prince of Wales opened, on December 12th, the new extensions at the Prince of Wales's General Hospital, Tottenham, consisting of three new wards holding seventy-two beds, a new theatre unit, and nurses' quarters, erected at a cost of £40,000.

A DINNER of the Queen's University Club, London, followed by a musical programme and dance, was held on the night of December 13th at the Criterion Restaurant, Piccadilly. The members and guests, of whom there were over a hundred present, were received by Dr. and Mrs. J. J. Redfern of Croydon. This reunion of Belfast University graduates and students was a great success. Membership, without nomination, was declared open to those eligible (all faculties) on payment of entrance fee and subscription, before March 1st, 1924, to the honorary treasurer, Mr. R. A. Kerr, 17, Wimpole Street, W. It is hoped that Queensmen and Queenswomen everywhere will join the club. Full particulars may be obtained from the honorary secretaries, Mr. W. McK. H. McCullagh, 152, Harley Street, W., and Dr. E. G. B. Calvert, 17, Wimpole Street, W.

A CHARITY ball, at which the Prince of Wales will be present, will be held under the auspices of the League of Mercy, at the Carlton Hotel, Pall Mall, W., on Wednesday, January 16th, 1924. Dancing will commence at 10 p.m. The price of single tickets, to include supper and light refreshments, is 30s.; they can be obtained from the Secretary, League of Mercy, 20, Cockspur Street, W.

AT a meeting held on behalf of the Walworth Women's Welfare Centre on December 13th, Lord Buckmaster presiding, it was moved by Dr. Elizabeth Sloan Chesser, seconded by Dr. Binnie Dunlop, and resolved without dissent, that "This meeting represent to the Ministry of Health that it is desirable that no official opposition should be raised to the giving of birth control advice at any welfare centre, the medical officers of which are willing to give such advice."

DURING the recent Pasteur festival the University of Strasbourg conferred honorary degrees on Flexner and Loeb of the Rockefeller Institute, New York, Ramon y Cajal of Madrid, Perroncito of Turin, Welch of Baltimore, Ehlers of Copenhagen, and Bordet of Brussels.

THE fourth all-Russian congress dealing with health resorts will be held next month at Moscow.

THE next Congress of the French society of dento-facial orthopaedics will be held at the Paris Faculty of Medicine from January 19th to 21st, 1924. Further information can be obtained from the general secretary, M. de Nevrezé, 20, Rue Mogador, Paris.

MESSRS. BURROUGHS, WELLCOME AND CO., and the BRITISH DRUG HOUSES, LIMITED, inform us that in accordance with the announcement by the Medical Research Council published last week (p. 1232) the price of insulin will be reduced on and after January 1st, 1924, to 12s. 6d. per phial containing 100 units (10 doses) in 5 c.cm.

DURING 1922 the number of free venereal clinics in Germany was increased from 174 to 188. Of the 106,763 persons examined, 17,156 were found not to have any venereal disease; of the 77,307 who had some form of venereal disease, 28 per cent. of the men and 26 per cent. of the women were married.

NUMEROUS cases of acute poliomyelitis are reported to have occurred lately in Berlin, not only among children, but also among adolescents.

OF the 1,500 medical practitioners in Tokyo 1,000 have lost their practice as the result of the earthquake.

WATSON AND SONS, Sunic House, issue an exposure table in card form for estimating the *x*-ray exposures when using Coolidge tubes with either plates or double-coated films. The convenient form should make this of use to many *x*-ray workers.

SOVIET Russia was declared free from cholera on October 3rd.

MR. J. W. WHEELER BENNETT, High Sheriff of Kent, has made a donation of £10,000 for the extension and improvement of the Kent County Ophthalmic Hospital, Maidstone.

DR. SPILLMANN, professor of dermatology and syphilis in the University of Nancy, has been nominated dean of the Faculty of Medicine in succession to the late Professor Meyer.

WE regret to hear of the death, on Christmas Day, of Sir Napier Burnett, K.B.E., M.D., Chief Executive Officer of the Joint Council of the British Red Cross Society and the Order of St. John of Jerusalem. He had been in ill health for some months. He was 51 years of age.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediocra Westrand, London*: telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

LICENCE FOR MALE SERVANT.

"L. B. S." employs a man on various work in connexion with the house, garden, delivery of medicine, and cleaning (not driving) of car. He is of opinion that the greater part of his work is in connexion with the practice, including therein (*a*) the cleaning of professional equipment and (*b*) work necessitated by the employment of other servants for professional purposes. The Ministry of Labour requires payment of unemployment contributions, but has apparently done so on the assumption that he is a "chauffeur and handyman," which is not entirely correct. Can licence duty be imposed?

*** In our opinion the answer to the question turns on whether (*b*) above is work done arising out of "employment in a personal, domestic, or menial capacity." We are not aware of any binding decision which covers the facts. The difficulty from our correspondent's point of view is the disjunctive "or" in the defining phrase. *Prima facie* domestic or menial work—for example, the cleaning of the surgery-maid's boots—is work in a taxable capacity although the ultimate object to be served is professional. On the other hand, to apply that construction rigidly would clearly involve considerable inequity—as, for instance, where a man was wholly employed on such work in a private nursing home. We suggest that our correspondent might apprcach the Ministry of Labour again stating the facts once more—including the fact that the servant does not drive the car. In all the circumstances we cannot advise him to resist the "licence" claim at present.

THE INFANT ANUS.

"G. R." asks what should be the size of the anus in an infant aged about 6 months. He has to treat a case in which he considers there is some stenosis, and proposes to use Hegar's dilators. He wishes to know what size (that is, number) of dilator the anus should be dilated to.

*** The normal anus of a child of 6 months should admit the little finger comfortably; gradual dilatation to twice that size if possible may be advisable. If the nurse passed an index finger daily that would be sufficient to prevent further stenosis. A finger would be preferable to a Hegar's dilator. Developmentally the condition represents a stage of an imperforate anus, and it would be well to exclude a septum or any abnormal opening into urethra, vagina, or bladder.

CHRONIC URTICARIA.

"HIBERNIA" asks for advice in the treatment of a case of chronic urticaria which has lasted six weeks. Methods of treatment tried, without success, include calcium lactate 15 to 20 grains t.i.d., injections of adrenaline hydrochloride, intestinal antiseptics, tinct. belladonnae, and a lacto-vegetarian diet. The usual soothing external applications give, of course, only temporary relief.

TREATMENT OF ACTINOMYCOSIS.

DR. W. SCOVIL SODEN (Winchcombe, Glos.) asks for suggestions for further treatment of the following case: Male, aged 37, actinomycosis of soft tissues of right side of face following a sinus left from incomplete extraction of a septic tooth four years ago. The present disease was first diagnosed two years ago. Has had potassium iodide in doses up to 4½ drachms a day, autogenous vaccines, and *x* rays. Abscesses are always incised and evacuated as soon as softening takes place. The condition is apparently no nearer being cured now than at the end of the first two months of treatment. The patient has seen many surgeons and physicians, but no recognized line of treatment has done any permanent good.

INCOME TAX.

First Year of Practice.

"R. L." is not aware of his predecessor's profits, as properly calculated for income tax purposes, and has been assessed for his first year in the practice on the basis of the gross bookings less expenses of that year, the amount of the correct three years' average being unknown.

*** The amount assessed cannot be said to be correct; at best it is presumably put forward as a probable approximation. If "R. L." can adduce any specific causes why his profits (true, not cash profits) should be more than his predecessor's they should be taken into account and the current year's figures modified accordingly if they are to serve as an estimate of the probable average. Even if that adjustment cannot be claimed some allowance should be made for the probable loss by bad debts to be incurred on the debts outstanding; for this purpose a detailed examination should be made by "R. L." of the debts outstanding, and any probable loss thereon treated as an expense of 1922.

LETTERS, NOTES, ETC.

THE YEAR OF THE FIRST FOLIO.

MR. A. W. POLLARD has had the happy notion of sending to the *Times Literary Supplement* a list of the books published in London in 1623, the year of the appearance of the first folio edition of *Shakespeare*, which is, when all is said and done, the canon of his plays. The number of new works entered on the Stationers' Register in 1623 was 168. The list included ballads and news-letters or "Currants"; excluding these there were 145 entries of books; 88 of these (or 60 per cent.) dealt with religious subjects. There was only one book on law, but there were three medical entries, all of a popular kind. "They comprised," Mr. Pollard says, "(i) the second part of Toby Venner's *Via recta ad vitam longam*, (ii) *The Anatomie of Urines*, partly a translation, but containing 'a discourse of the lawlesse intrusions of parsons and vicars upon the profession of physicke' by the translator, James Hart, and (iii) 'a booke called *Panala, Ala Catholica, or a compound ale, which is a generall purge for most infirmities*.' To this last Master Hart may equally have objected, since it was written by 'Master Folkingham, gent.,' who presumably had no medical qualification."

CHOCOLATES.

THE Christmas parcel post has brought to this office a box containing an attractive assortment of chocolate and chocolate-coated sweetmeats, manufactured by Messrs. Cadbury Brothers, Ltd., in their hygienic workshops at Bournville. It is a fortunate thing that confectionery so popular nowadays among all classes can be had in so pure a form and at such moderate prices. Chocolate as a beverage was known to connoisseurs in the sixteenth century, but chocolate comfits were something of a rarity even in our grandparents' time, and the young people of to-day must often wonder how our ancestors contrived to exist before the great Quaker firms began to overspread the country with their delectable wares.

THE "Osteograph" supplied by Messrs. H. K. Lewis and Co., Ltd. (price 6s. 9d., post free), is a simple celluloid sheet by means of which the outlines of the bones can be rapidly and accurately drawn. The device is likely to be of use to students of anatomy and to any members of the medical profession who require such drawings for notes or demonstration purposes.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

MARRIAGE.

PLACE—TURNER.—On December 22nd, at St. Margaret's Church, Burnage, Thomas Byron Place, junr., L.D.S., eldest son of Thomas Byron Place, L.D.S., of Crewe, to Mary Turner, M.B., Ch.B., D.P.H., eldest daughter of the late Martin Turner and Amy Turner of Manchester.

DEATHS.

BISSET SMITH.—On December 5th, at his residence, 28, Willow Road, Hampstead, N.W.3, John Bisset Smith, M.A., M.B., Ch.B., aged 74 years.

GARDNER.—On October 9th, Robert Irvine Gardner, M.B., of London Road, Enfield, after an operation.

WORTS.—On December 23rd, at Fordham Lodge, Fordham, Charles James Worts, M.R.C.S., L.S.A., aged 80 years.